SAMSUNG

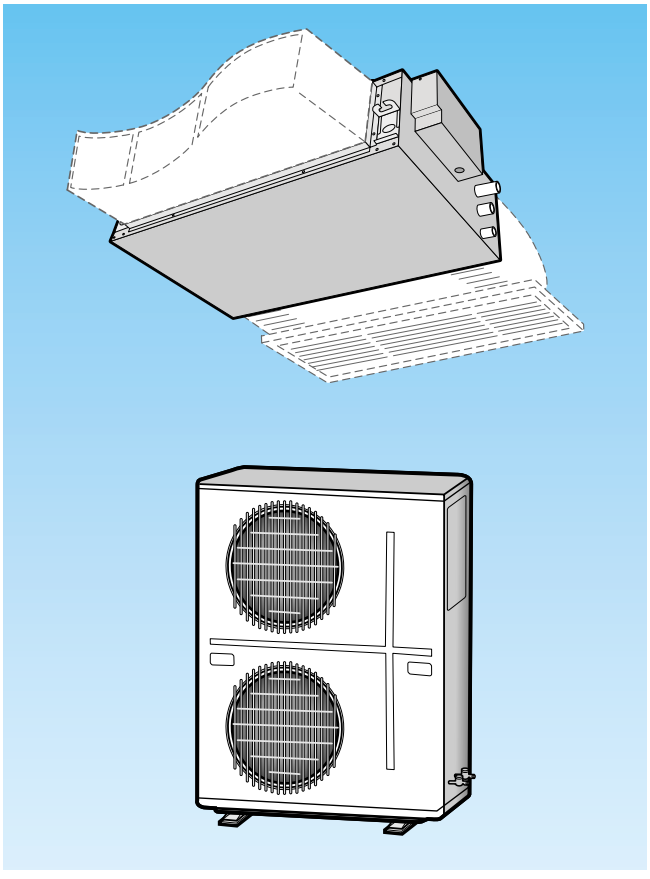
DUCT TYPE AIR CONDITIONER

(Cool)

TYPE	INDOOR UNIT	OUTDOOR UNIT
ADH4400G	IDH4400A	UDH4400G
DH44ZA1(A2)	DH44ZA1(A2)	DH44ZAX

SERVICE Manual

AIR CONDITIONER



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1. Product Specifications

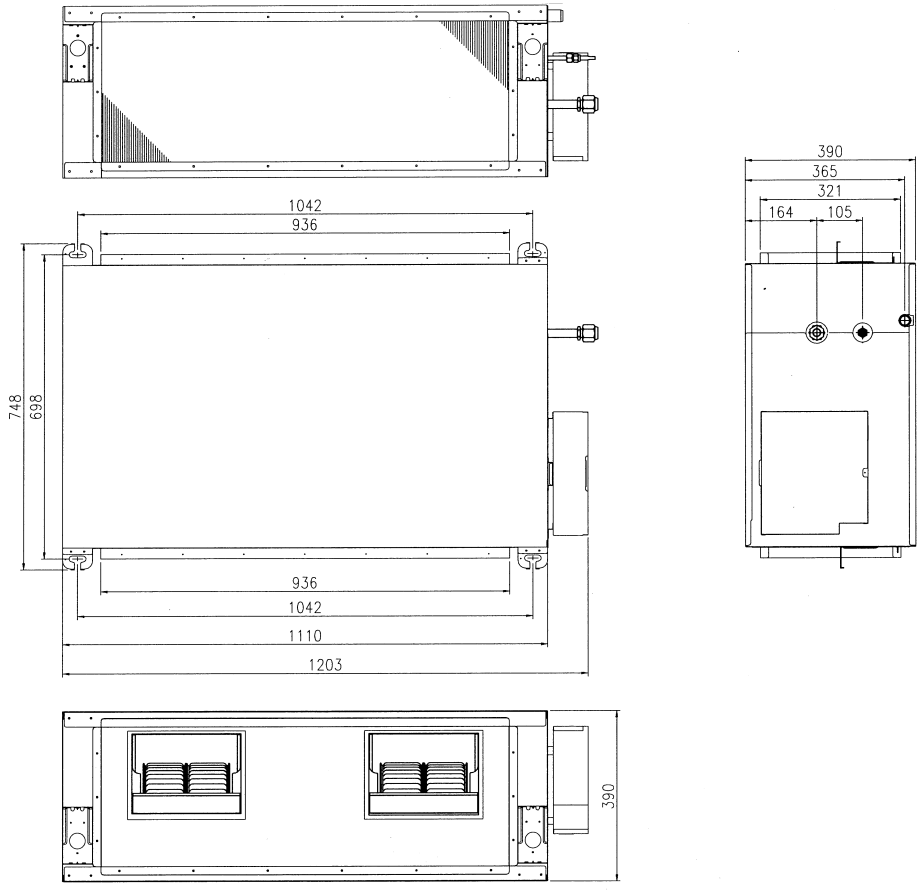
1-1 Table of Specifications

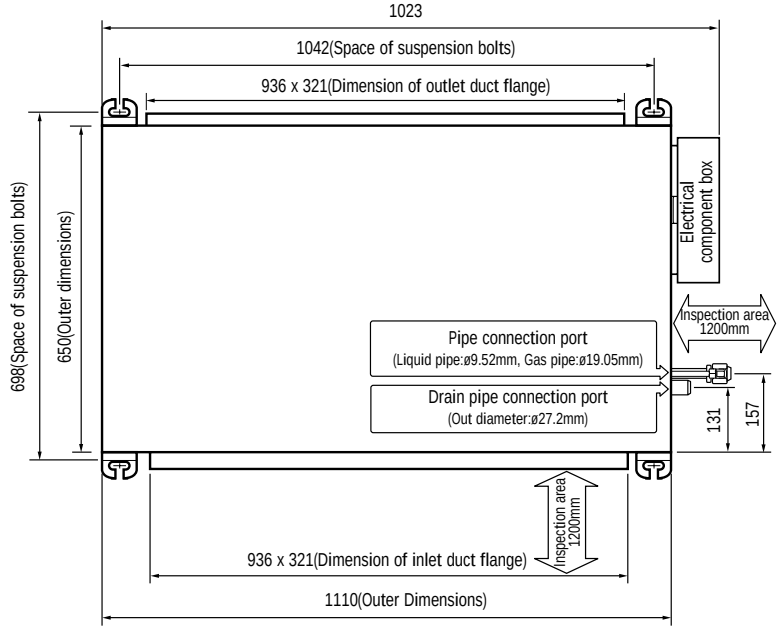
MODEL	INDOOR UNIT			IDH4400G / DH44ZA1(A2)
	OUTDOOR UNIT			UDH4400G / DH44ZAX
Capacity	Cooling		Btu/h	45,000
			W	13,200
	Heating		Btu/h	54,900
			W	16,100
Power supply				3ø 380-415V~ 50Hz
Power input	Cooling		kW	4.8
	Heating		kW	5.3
Running current	Cooling		A	8.5
	Heating		A	9.2
Indoor unit	Fan speed (at 0mmAq)	H.H	r.p.m	940
		Hi	r.p.m	880
		Med	r.p.m	850
		Low	r.p.m	790
	Air circulation	H.H	m^3/min	36
		Hi	m^3/min	34
		Med	m^3/min	32
		Low	m^3/min	30
	Noise Level (Sound pressure)	Hi	dB(A)	49
		Med	dB(A)	48
		Low	dB(A)	47
	Heat exchanger	type		Wave fin coil
		row x stages x fin pitch		3 x 14 x 1.7(900mm)
	Fan	type		Siroco
		motor output	W	211
	Dimensions	H	mm	390
		W	mm	1,110
		D	mm	650
	Weight	kg	Net/Gross	70/78
Outdoor unit	Fan speed	Hi	r.p.m.	900
		Low	r.p.m.	500
	Air circulation (Hi)		m^3/min	90
	Sound pressure level		dB(A)	65
	Fan	type		propeller
		motor output	W	114
	Compressor	type		scroll
		model		ZR61KC-TFD

MODEL	INDOOR UNIT			IDH4400G / DH44ZA1(A2)
	OUTDOOR UNIT			UDH4400G / DH44ZAX
Outdoor unit	Compressor	motor output	kW	3.79
		protection		Internal
	Heat exchanger	type		wave fin coil
		row x stages x fin pitch		2 x 48 x 1.7(935/915)
		face area	m^2	1.122
Condition	Refrigerant	control		Capillary
		(R22)Charge	g	4,000
	Dimensions	(H x W x D)	mm	1,240 x 930 x 385
	Weight	kg	Net/Gross	123/133
	Indoor unit	Cool(DB/WB)	˚C	27/19
		Heat(DB/WB)	˚C	20/15
	Outdoor unit	Cool(DB/WB)	˚C	35/24
		Heat(DB/WB)	˚C	7/6
Piping	Pipe O.D.	Liquid	mm(inch)	9.52(3/8")
	size	Gas	mm(inch)	19.05(3/4")
	Connection method			Flare
	Between	Height	m	Max. 25
		Pipe length	m	Max. 50

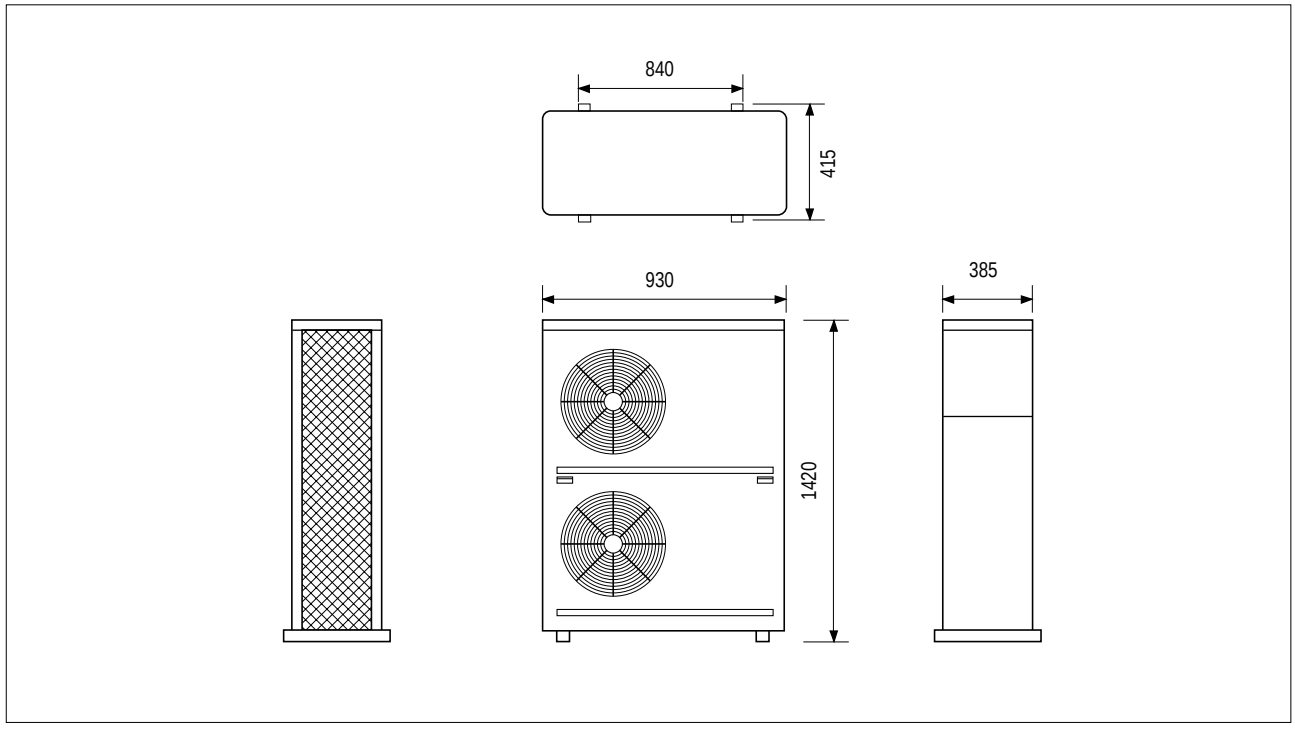
Notice : This model is tested under the external static pressure of 14mmAq

• Indoor unit


1042
936
748
698
936
1042
1110
1203
390
390
365
321
164
105

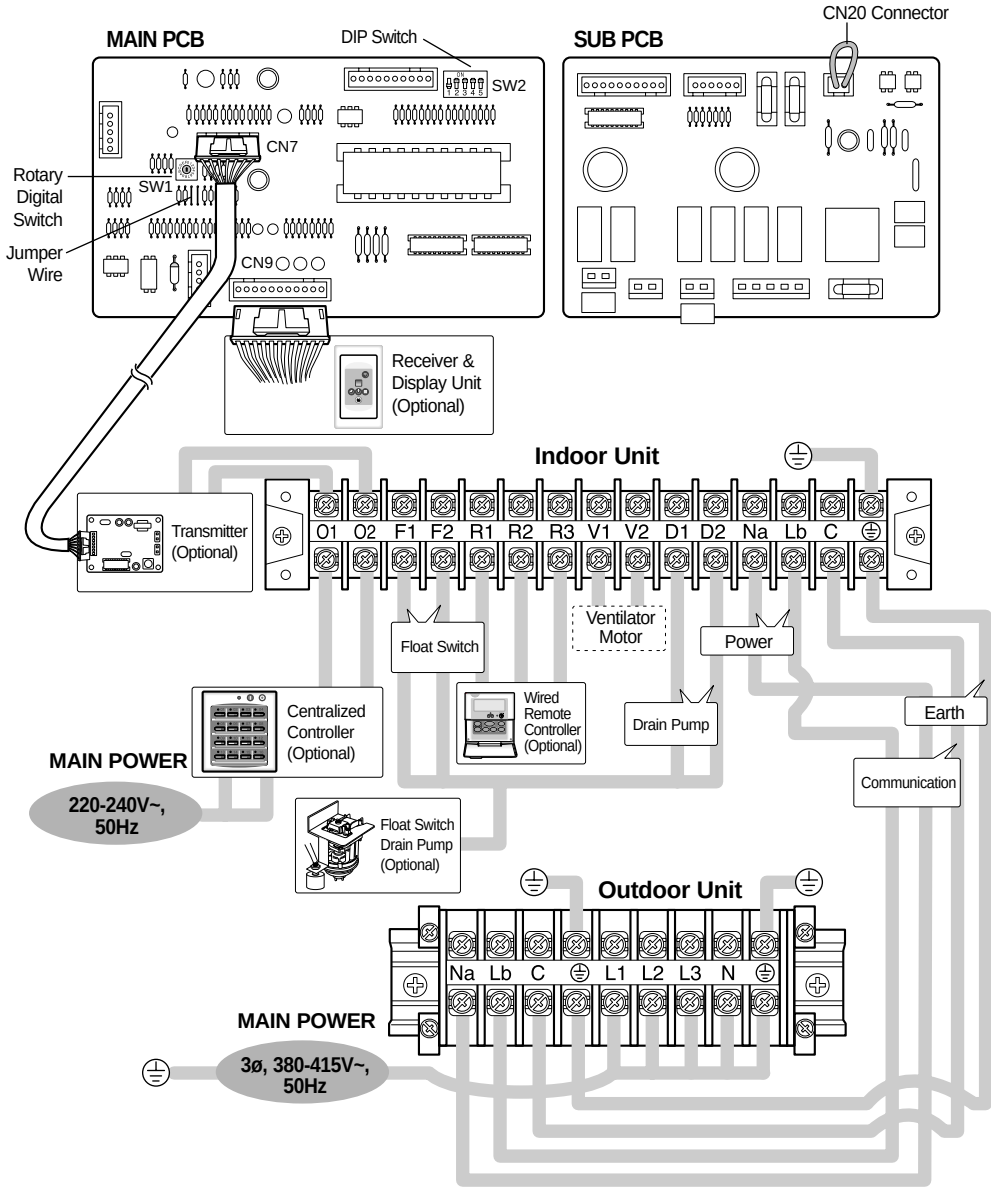

1023
1042(Space of suspension bolts)
936 x 321(Dimension of outlet duct flange)
698(Space of suspension bolts)
650(Outer dimensions)
Electrical component box
Inspection area 1200mm
Pipe connection port
(Liquid pipe:ø9.52mm, Gas pipe:ø19.05mm)
Drain pipe connection port
(Out diameter:ø27.2mm)
131
157
Inspection area 1200mm
936 x 321(Dimension of inlet duct flange)
1110(Outer Dimensions)

• Outdoor Unit



2. Installation

2-1 Wiring diagram



Cable Specifications

The following electrical characteristics must be respected.

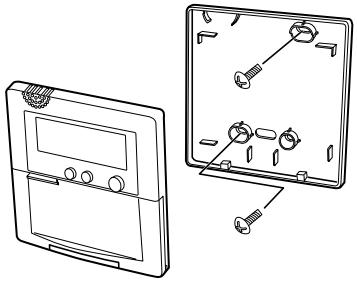
MODEL		ADH4400G / DH44ZA1(A2)	Note
Power		3Ø, 380-415V~, 50Hz	◆ The power cables are not supplied with the air conditioner. The user should purchase them separately. ◆ When connecting the cables to the main power, you should connect each cable(L1, L2 & L3) properly.
Sub switch		30A	
Fuse		30A	
Min. size of electric Wires from/to the indoor/outdoor unit		H07RN-F, 4G, 1.25mm^2	
Size of electric input wires	20m or less	H07RN-F, 3G, 2.5mm^2	
	50m or less	H07RN-F, 3G, 4.0mm^2	

2-2 Wired Remote Controller Installation

Accessories

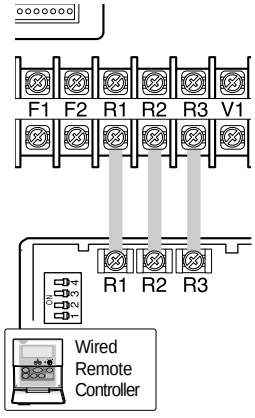
Wired Remote Controller(1)	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)

1. Disassemble the wired remote controller by using two grooves on the top of it.



2. Secure the rear cover of the wired remote controller on the wall with two screws.

3. Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals on the electrical component box each.



Caution :

- Do Not keep the wired remote controller cables with a 220V cable because the remote controller cables have low voltage.
- Do Not input 220V power to the R1, R2 and R3 in the wired remote controller.

Note : Cable Specifications

Cable type	Double-insulation, 3G
Size of cables	0.3mm^2~0.75mm^2
Max. length of electric wires from the indoor unit to the wired remote controller	100m

4. Reassemble the wired remote controller.

Caution :

- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

2-3 Wireless Remote Controller Installation

Accessories

Wireless Remote Controller(1)	Battery(2)	M4 X 16 Tapped Screw(2)	Remote Controller Holder(1)

Receiver & Display Unit(1)	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)

Wire Kit

Length : 10m

1. Remove the receiver & display unit cover by using the tab on the bottom of it.
2. Open the receiver & display unit.
3. Connect the end of the connector wire to the receiver & display unit and connect the other end of the wire to the electrical component box as shown in figure.

Caution :

- Do NOT keep the receiver & display unit cables with a 220V cable because the remote controller cables have low voltage.

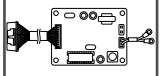
4. Close the receiver & display unit.
5. Secure the receiver & display unit on the wall with two screws.
6. Reassemble the receiver & display unit cover.

Caution :

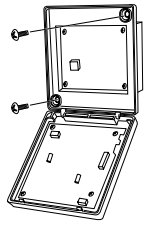
- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

2-4 Centralized Controller Installation

Accessories

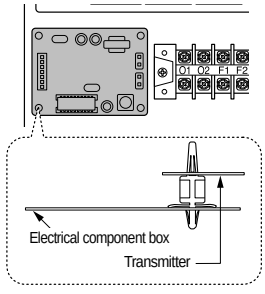
Centralized Controller(1)	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
Transmitter(1) 	Spacer Support(4)	Cable-Tie(2)	

1. Open the centralized controller cover by using two grooves on the top of it.

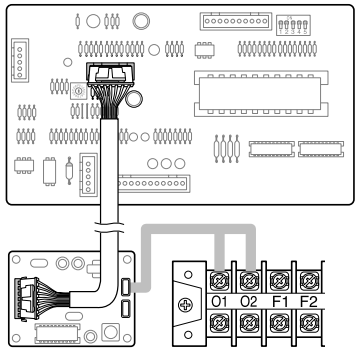


2. Secure the rear cover of the centralized controller on the wall with two screws.

3. Secure the transmitter with four spacer supports into the electrical component box.



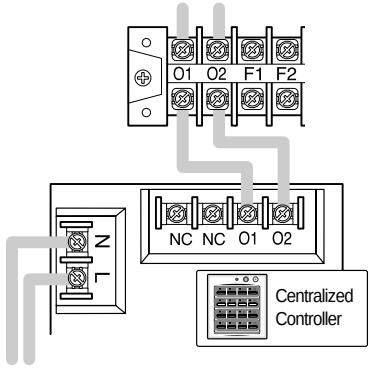
4. Connect the cable from the PCB and to the transmitter.
   And connect another cable from the O1, O2 terminals and to the transmitter as shown in figure.



5. Connect the O1 and O2 terminals of the centralized controller to the O1 and O2 terminals on the electrical component box as shown in figure.

Note : Cable Specifications

Cable type	Double-insulation, 2G(Shield Cable)
Size of cables	0.75mm²~1.25mm²
Max. length of electric wires from the indoor unit to the centralized controller	1km



6. Connect the power cables.

Note : Cable Specifications

Cable type	Double-insulation, 2G
Size of cables	0.75mm²~1.25mm²

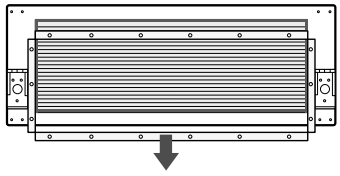
7. Reassemble the centralized controller.

Caution :

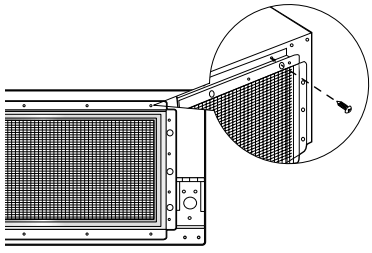
- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

2-5 Air Filter Installation

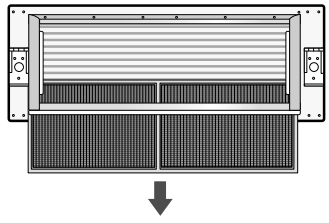
1. Remove the air inlet duct flange.



2. Attach the air filter kit to the air inlet side of indoor unit.

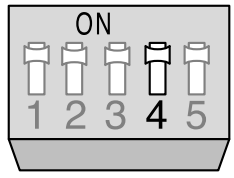


3. To clean the air filter, remove the fixing bracket on the base of air filter kit, then pull out the filter.



Note: Setting Up Filter Cleaning Cycle

- Adjust the DIP switch(SW2) in the main PCB to the desired position referring the table below.



Switch No.	Switch Position	Filter Cleaning Cycle
4	ON	1,000 hours
	OFF	2,000 hours

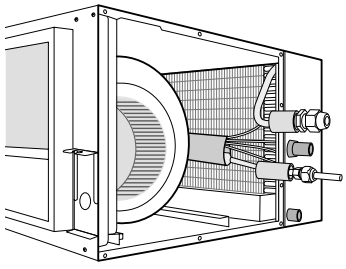
Caution :

- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- The optional air filter has to be cleaned only by an authorized person or service agent.

2-6 Drain Pump Installation

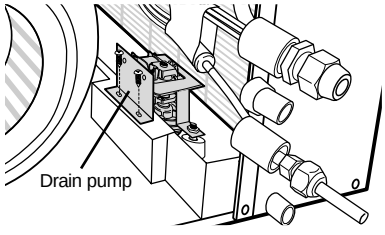
Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside.

1. Open the side of indoor unit.

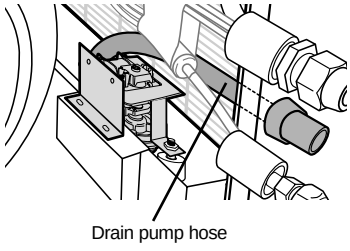


2. Screw the drain pump with two screws.

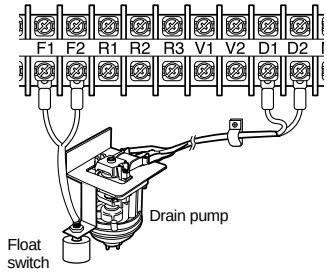
Note : When installing the drain pump, leave a 7mm space between the bottom of the drain pan and the drain pump.



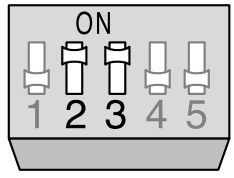
3. Connect the drain hose to the drain socket.



4. Connect the cable to the electrical component box as shown in figure.



5. Adjust the DIP switch(SW2) on the main PCB according to the table below.



Switch No.	Switch Position
2	ON
3	ON

Note : Wrap the drain tube outlet with an insulating materials.

2-7 Group Control Installation

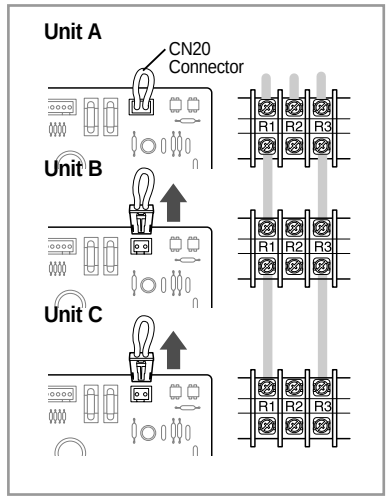
* You should adjust the option switches in the electrical component box or on the PCB of the wired remote controller.
*** Before setting up the option switches, always make sure that you have turned off the main power.**
* After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

2-7-1. With Wired Remote Controller

A user can operate up to sixteen air conditioners by using the wired remote controller In this case, the air conditioner can be controlled by only one wired remote controller connected to the indoor unit and cannot be controlled by the others.

1. Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals in any indoor unit "A" each.

2. Connect the R1 and R3 terminals in the indoor unit "A" to the R1 and R3 terminals in another indoor unit "B".



Caution :

When connecting the cables, you must keep these :
- The R1 terminals must be connected to the R1s.
- The R3 terminals must be connected to the R3s.
- Do not connect the R2 terminals to anywhere.
  If you connect R2 terminals, the PCB will be damaged.

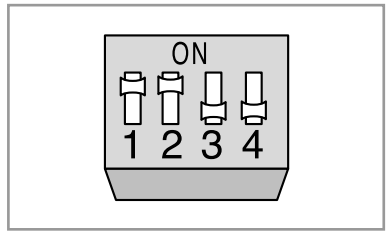
3. Connect the R1 and R3 terminals of "B" to any indoor unit "C" and connect the others as the same way.

4. Remove the CN20 connectors on the sub PCBs except the unit connected with remote controller(Adress "0").

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen

5. Remove the CN20 connectors on the sub PCBs except the unit connected with remote controller(Address "0").

6. Adjust the DIP switch No. 2 in the wired remote controller to "ON" position.



Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.

2-7-2. With Centralized Controller

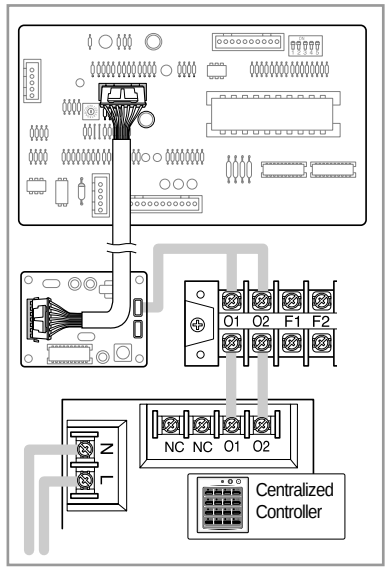
A user can turn on/off up to sixteen air conditioners by using the centralized controller.
In this case, the user can turn on/off all air conditioners or a specific air conditioner connected with the centralized controller. And each air conditioner can be controlled by its own remote controller(s) depending on the setting.

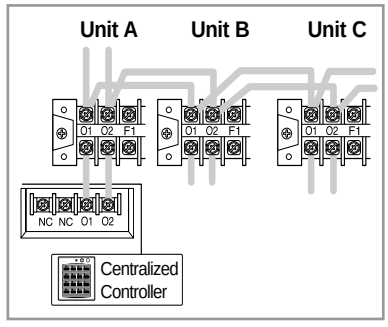
1. Connect the O1 and O2 terminals in the centralized controller to the O1 and O2 terminals in the indoor unit “A”.
2. Connect the O1 and O2 terminals in the indoor unit “A” to the O1 and O2 terminals in another indoor unit “B”.
3. Connect the O1 and O2 terminals of “B” to any indoor unit “C” and connect the others as the same way.
4. Adjust the DIP switch(DS01) in the centralized controller to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.

5. Adjust the rotary switch on the transmitter to the desired position referring to the table on page 2-11.

Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.





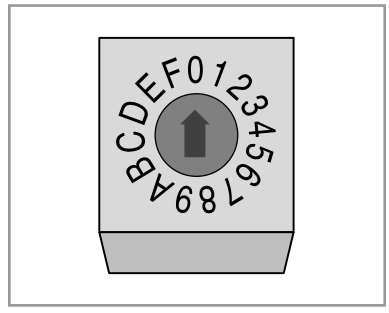
2-8 Setting Up Option Switches

IMPORTANT : Before setting up the option switches, always make sure that you have turned off the main power.

Main PCB in the Indoor Unit

Rotary Switch(SW1)

A user can operate up to sixteen air conditioners by using the wired remote controller. Before controlling more than one air conditioner, you should connect the air conditioner each other. And you must assign addresses to the air conditioners. For further details on connecting air conditioners.
If the user would like to controller only one air conditioner, make sure that the arrow is at “0” position.



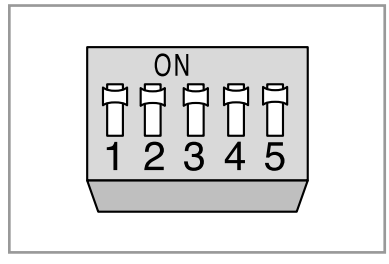
Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen

DIP Switch(SW2)

Adjust the switch to the desired position referring to the table below.

Switch No.	Option Item	Switch Position		Note
		ON	OFF	
1	Ventilator Fan	Not installed	Installed	Not supplied
2	Drain Pump	Installed	Not installed	Optionally supplied
3	Float Switch	Installed	Not installed	
4	Filter Cleaning Cycle	1,000 hours	2,000 hours	
5	Indoor Fan Motor Speed	Normal	High speed	



Caution :

- If you do not adjust the switch when not installing the drain pump, "✳9" error will occurs. If this happens, adjust the No.2 and No.3 switches to the "OFF" position.

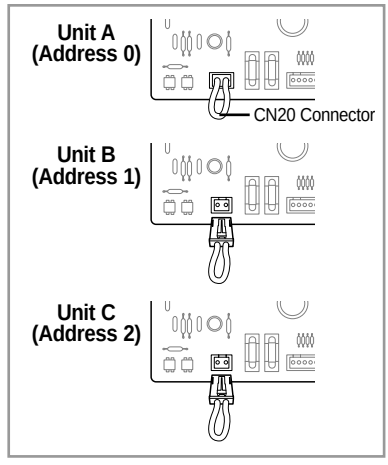
Sub PCB in the Indoor Unit

CN20 Connector

Remove the CN20 connector in the sub PCB, if necessary, referring to the table below. (This procedure is needed only when the user would like to control a group by using the wired remote controller.)

Address	Situation of the CN20 Connector
0	Connected
1 - F	Removed

Note : ◆ Up to 16 air conditioners can be controlled with one wired remote controller.
◆ If the user does not want to control a group, do not remove the CN20 Connector.

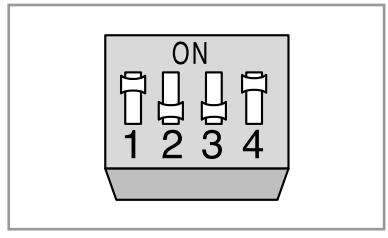


PCB in the wired remote controller

Dip Switch(DS01)

Adjust the DIP switch to the desired position referring to the table below.

Switch No.	Option Item	Switch Position	
		ON	OFF
1	Type of unit	Cooling only	Heat pump
2	Number of air conditioner(s) controlled by the wired remote controller	Group controlling	One indoor unit controlling
3	Basic specification	-	O
4	Using wireless remote controller	Can be used	Cannot be used

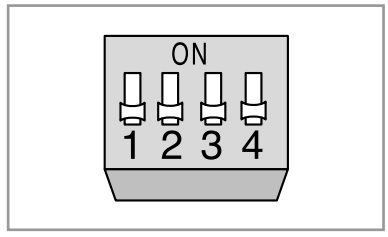


Centralized Controller

DIP Switch(DS01)

Adjust the DIP switch to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.



Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.

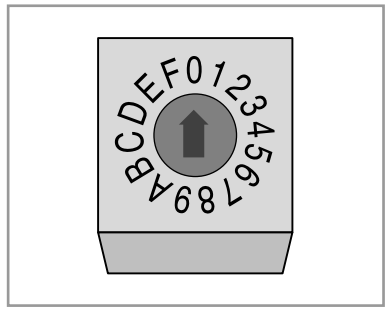
Transmitter

Rotary Switch(DS01)

A user can turn on/off up to sixteen air conditioners by using the centralized controller. To use the controller, you must assign addresses to the air conditioners. For further details on connecting air conditioners.
If the user would like to controller only one air conditioner, make sure that the arrow is at "0" position.

Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen



Original Position of Option Switches

The option switches are preset by the manufacturer. Refer to the table below, if necessary.

Option Place	Component No.	State
Main PCB in the indoor unit	Rotary Switch(SW1)	0
	DIP Switch(SW2)	ON
	Jumper Wire(SW05)	SHORT
Sub PCB in the indoor unit	CN20 Connector	Connected
Wired Remote Controller	DIP Switch(DS01)	OFF
Centralized Controller	DIP Switch(DS01)	OFF
Transmitter	Rotary Switch(DS01)	0

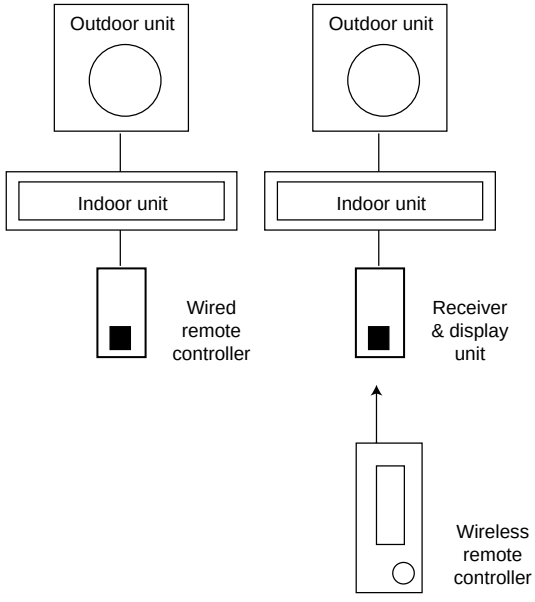
Note : Before setting up the options, always make sure that you have switched off the main power.
After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

MEMO

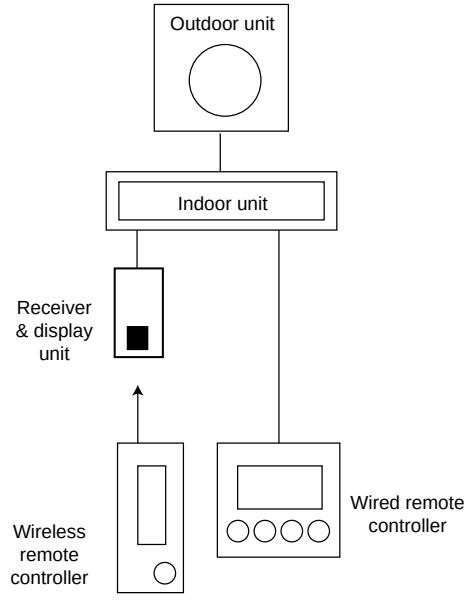
3. Operating Instructions

3-1 Example of Single unit Operation

1 chamber wired, wireless remote controller single operation and 1 chamber wireless remote controller + wired remote controller combination control



Example of 1 chamber single operation (wired or wireless remote controller)



Example of 1 chamber single operation (wireless + wired remote controller)

* In case of 1 chamber single operation (wireless remote controller+wired remote controller), both setting of wired remote controller to MASTER/SLAVE is available.

<To use wired & wireless remote controller simultaneously >

1. Put off the power.
2. For the combined use of wireless remote controller and wireless remote controller, put on the option switch 4 of wired remote controller.
3. Putting off the option switch 4 of wired remote controller disables the control by wireless remote controller.
4. Put on the power.

Caution :
- After resetting the option in the wired remote controller, be sure to put the power on again so that the set option can be applied.

Wired Remote Controller Option Switch

DIP SWITCH NO	OPTION ITEM	SW ON	SW OFF	DEFAULT
1	Type of unit	Cooling only	Heat pump	OFF
2	Indoor unit control	Group control	Indoor unit 1 chamber control	OFF
3	Basic specification	-	-	Fixed to OFF
4	Combined use of wireless remote controller	Able to operate of wired remote controller (SLAVE MODE)	Disable to operate the wireless remote controller (MASTER MODE)	OFF

3-2 Exampe of Group Control Operation

3-2-1 Group Control with wired remote controller

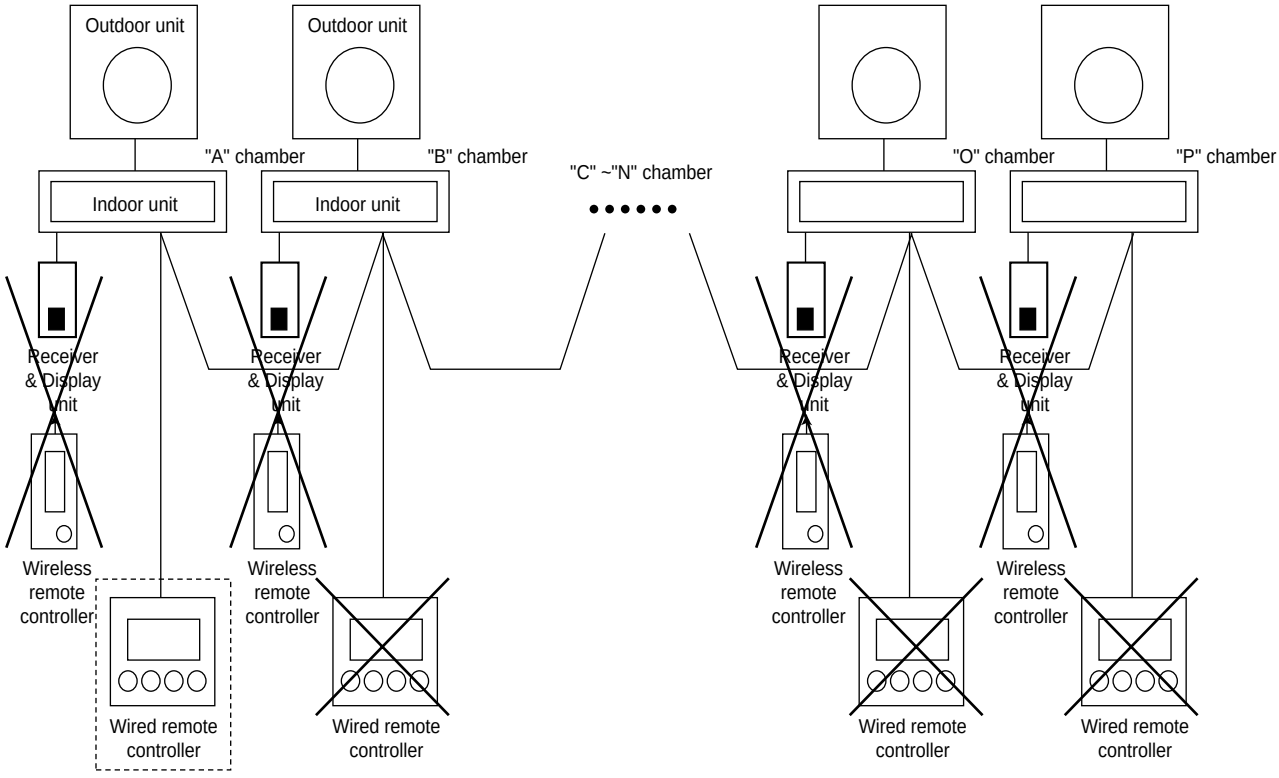


Figure. 16 Chamber Group Control (Wireless remote controller + wired remote controller) System

- The 16 chamber remote controller operation by wired remote controller can be simultaneously performed all for 16 chambers through setting the 16 chambers to one group through one wired remote controller.
- While operated in Group, the control by wireless remote controller installed in all chambers (“A” ~ “P”) is disabled except the wired remote controller installed in the “A” chamber and the simultaneous use with the option item, the centralized controller is also disabled.

3-2-2 The group operation method by wired remote controller

1. Setting of indoor unit Main PCB

- Put off all of set power installed in each room.
- Remove the centralized controller if any is used already.
- Connect the communicating line from “A” chamber to “P” chamber.(R1<->R1, R3<->R3)
- Connect the “R1”, “R2” and “R3” of indoor terminal board installed to the “R1”,”R2”,”R3” of wired remote controller, respectively.
- Adjust the address of rotary switch of indoor unit PCB in “A” chamber to “0”.
- Remove CN20 connector from main PCB of Indoor unit except the one installed in “A” with reference of the figure.
- Adjust the address of rotary switch of indoor unit PCB in “B” chamber to “1”. In such a way, adjust the address of digital switch up to chamber “P”.
- Put on the set power installed in each chamber.

Caution :

- During the connection, connect the “R1” of indoor unit terminal board installed in each chamber with “R1”.
- During the connection, connect the “R3” of indoor unit terminal board installed in each chamber with “R3”.
- Do not connect the terminal R2 of indoor unit terminal board from “B” to “F” chamber except “A” chamber.
- The option item, centralized controller shall be removed since the simultaneous use with wired remote controller is disable during the group control.
- Adjust the address of indoor unit rotary switch installed in each chamber so that it might not be duplicated.

2. Setting of wired remote controller

- Put off the set power where the wired remote controller is installed.
- Put on the option switch SW 2 of wired remote controller.
- Put on the set power where the wired remote controller is installed.

Caution :

- The option can be applied when the power is put again after resetting the option of wired remote controller. Be sure to keep the set power on/off after option setting.

3-2-3 Group Operation method of wired remote controller

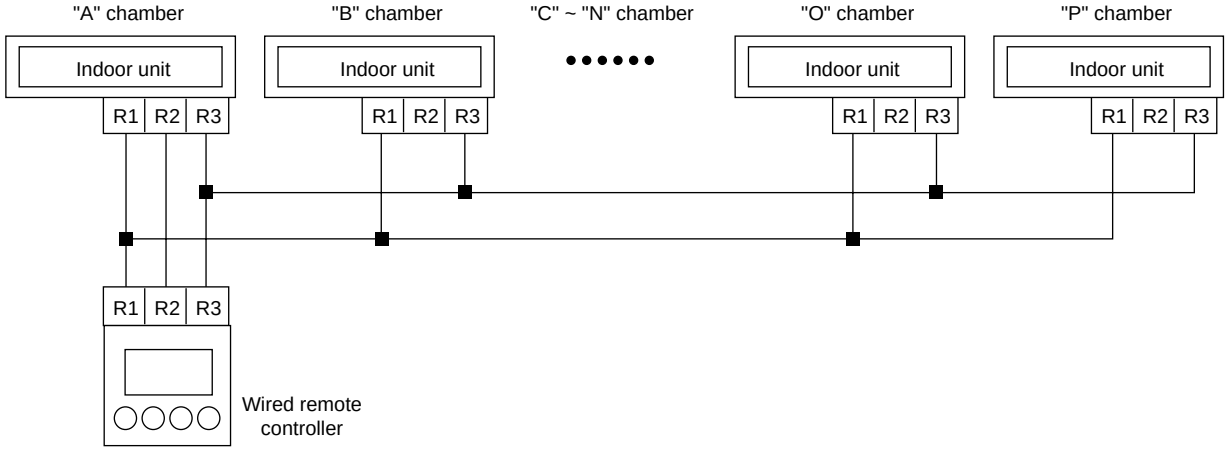
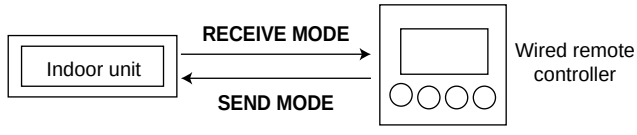


Figure. 16 Chamber Group Control(wired remote controller) Connection Diagram

- Press the ON / OFF button of wired remote controller to be on.
  At the time, the set installed from A chamber to P chamber is getting on in order with the interval of 2 seconds.
- Select the operation of auto / cooling / dehumidi-fying / blowing / heating by pressing MODE BUTTON.
- Select breeze / mild / strong wind by pressing the wind volume button.
- Adjust the temperature set button to set the desired temperature.

✻ For reference

- The communication between wired remote controller and indoor unit is made through the synchronization with the output signal of zero cross detect circuit, and when 50Hz power is used, it has the 50bps transmission speed and when it has 60Hz power it has 60bps transmission speed. The transmission data between the wired remote controller and indoor unit is shown as in the figure.



Since the communication data between wired remote controller and indoor unit is consisting of total 10Byte, 2 seconds are required when using 50Hz power.

- For the communicating time with 16 chambers during the normal operation, 32 seconds are required and for the time with 16 chamber during the reservation operation, 64 seconds are required due to the increase of communicating data.

3-2-4 Startup method by wired remote controller

Start up of single operation

- Put on the set power.
- Adjust the address of digital switch of indoor unit PCB to “0”.
- Put OFF the option switch 2 of wired remote controller PCB.
- Put on the set power.
- Press the test button of wired remote controller for more than 3 seconds.
- The set is operated for 3 minute by the forced cooling operation and the set is off after 3 minute.
- The error occurring during the test operation is displayed on the wired remote controller windows and it shall be referred to the following table.

Error Code	Meaning	Checking Area
01	Indoor unit room thermistor error	• Indoor unit thermistor available or not and disconnected • Indoor unit PCB
05	Indoor unit pipe thermistor error	• Indoor unit pipe thermistor • Indoor unit PCB
06	Outdoor unit thermistor error	• Outdoor unit thermistor • Outdoor unit PCB
09	Float switch open error	• Drain pump, float switch • Drain system • Dip SW2 of indoor unit main PCB (If the drain pump is not installed, SW2 and SW3 shall be at the Off position.)
0A	Indoor unit ↔ outdoor unit communicating error	• Indoor unit ↔ outdoor unit communicating error • Indoor unit ↔ outdoor unit communicating cable • Indoor unit PCB, Outdoor unit PCB
0C	Wired remote controller ↔ indoor unit communication error	• Wired remote controller ↔ indoor unit communication cable • Indoor unit main PCB
0D	Outdoor unit pipe thermistor error	• Outdoor unit pipe thermistor • Outdoor unit PCB
0L	Three phase power incorrect connecting error	• Three phase power connecting • Outdoor unit PCB

Caution :

- Unless the address of digital switch of indoor unit PCB is set to “0” in case of “A” chamber single operation, the control by the wired remote controller is disabled.
- The power of SET shall be put on again after the resetting of wired remote controller option so that the the set option can be applied. Be sure to keep the power on/off of SET before and after the setting.
- The first digit of error code displayed during the single operation and group operation may be different. The first digit(MSB) stands for the address of the set where the error occurs. Since it is the single operation, the address of SET is “0”.

Startup of group operation

- Put off the power of SET.
- Adjust the addresses of digital switch of indoor unit PCB to "0"~"15", respectively.
- Put ON the option switch SW2 of wired remote controller PCB.
- Put on the power of SET.
- On the wired remote controller display, the digits "00" → "11" → "22" → are displayed up to "FF". After "FF" display, the wired remote controller is automatically set to the preserved operation status of indoor unit of chamber "A".
- If the current SET of chamber "A" is ON, put the set off by pressing the ON / OFF button.

Only at the SET off of chamber "A", the TEST mode is enabled.

- Press the TEST BUTTON of wired remote controller for more than 3 seconds.
- If the SET is operating for 3 minutes through forced cooling operation, the SET is off after 2 minutes.
- The Error occurring in the TEST operation displays in the wired remote controller display window and is referred to the following table.

Error Code	Meaning	Checking Area
*1	Indoor unit room thermistor error	• Indoor unit thermistor exist or not disconnected • Indoor unit PCB
*5	Indoor pipe thermistor error	• Indoor unit pipe thermistor • Indoor unit PCB
*6	Outdoor unit thermistor error	• Outdoor unit thermistor • Outdoor unit PCB
*9	Float switch open error	• Drain pump, float switch • Drain system • Dip SW2 of indoor unit main PCB (If drain pump is not installed, SW2 and SW3 shall be at OFF position.)
*A	Indoor unit ↔ outdoor unit communication error	• Indoor unit ↔ Outdoor unit communication cable • Indoor unit PCB, outdoor unit PCB
*C	Wired remote controller ↔ indoor unit communication error	• Wired remote controller ↔ indoor unit communication cable • Indoor unit main PCB
*D	Outdoor unit pipe thermistor error	• Outdoor unit pipe thermistor • Outdoor unit PCB
*L	Three phase power incorrect connecting error	• Threem phase power connecting • Outdoor unit PCB

Caution :

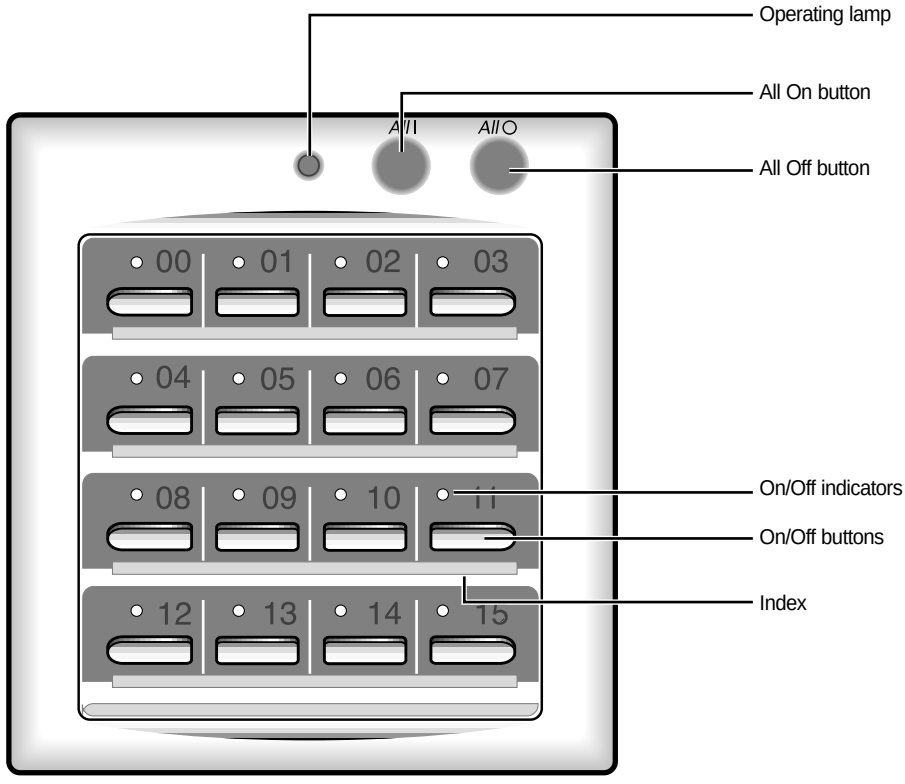
- Test operation is disabled when the chamber "A" is on after initialization of wired remote controller.
- The communication time between wired remote controller and indoor unit is required for 2 seconds. If any one of set is ON, be sure to put it off by pressing the ON/OFF button and start the TEST operation after 35 seconds at minimum.(The communication time with all chambers : 16 x 2 seconds = 32seconds)
- For the reservation operation, the communication time between all 16 chambers is required for 64 seconds due to the increase of communication data.
- The first digit (MSB) of error code displayed during the group operation stands for the address of SET where the error occurs.

3-3 Centralized Controller Operation

3-3-1 Appearance and characteristics of Centralized Controller

The centralized controller is installed on the wall.

The centralized controller is an optional accessory.



NOTE : Operating lamp comes on when at least one air conditioner connected to the centralized controller is operating.

- Since the centralized controller has the relay equipment, the option mounted on the indoor unit, the On / Off can be set for 16 chambers through the modem communication.
- Linkage of wired remote controller to wired remote controller is available by 3 kinds of level.
- The maximum extended distance of 1 Km is possible through modem communication. (the relay equipment is installed at the option item, indoor unit)
- The connection by non-polarity method is easy.

BUTTON NAME	FUNCTION
ALL1	• To put on all 16 chambers' set.
ALL0	• To put off all 16 chambers' set.
"01" ~ "16"	• To put on/off set assigned with the number.

3-3-2 Example of the centralized control system configuration

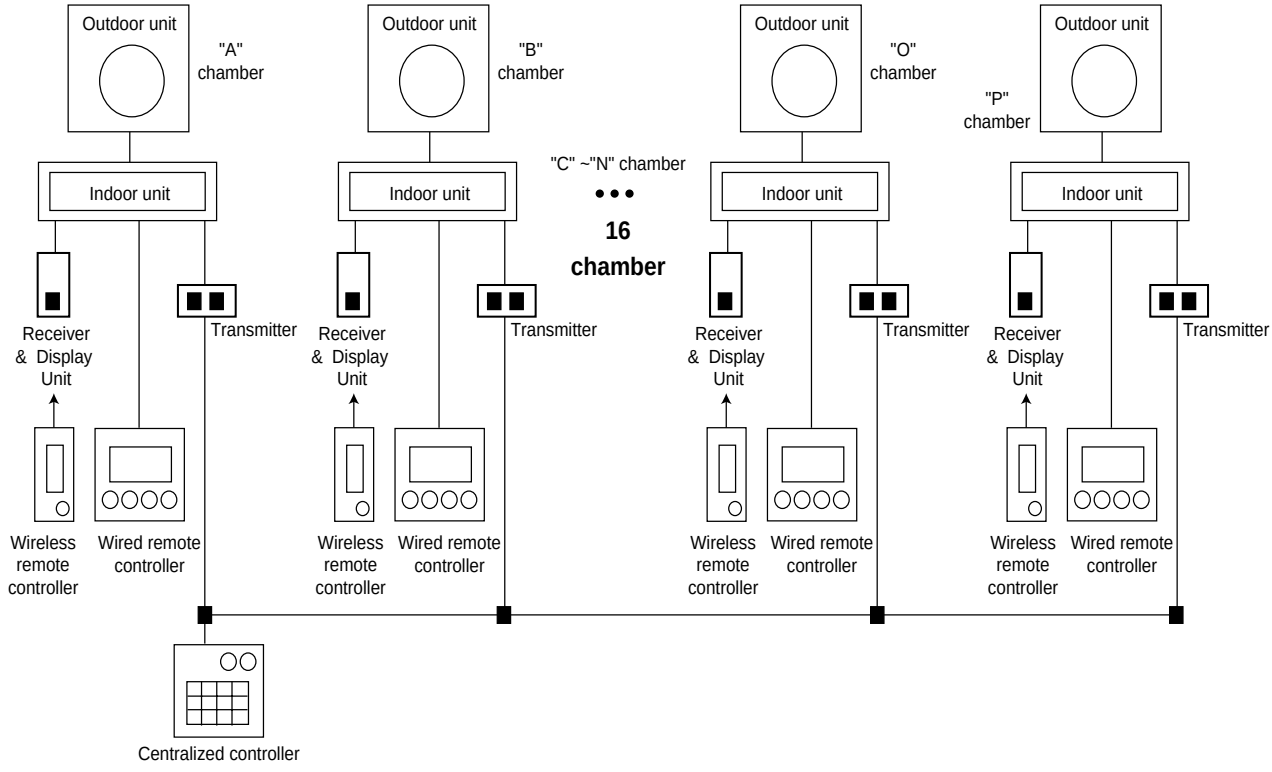
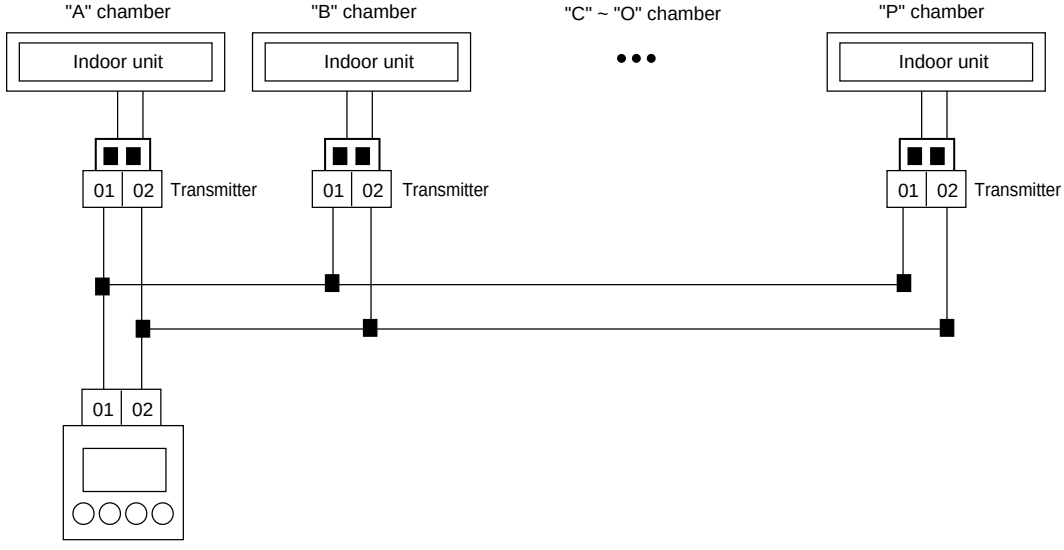


Figure. 16 Chambers Centralized Control (wireless remote controller + wired remote controller + centralized controller) System

3-3-3 Chambers centralized control system connection diagram



3-3-4 Centralized control operation method

1. Setting of indoor unit
   - Put off the set to be installed.
   - Put off the power of the centralized controller.
   - Mount the transmitter, the option item on the indoor unit set terminal board.
   - Adjust the address of rotary switch of transmitter mounted. (Adjust the address of transmitter mounted in chamber “A” to “0” and “B” to “1”... continue the adjustment up to “P” to “F”)
   - Connect the terminals O1 and O2 of the terminal board mounted on the centralized controller to the O1 and O2 of the terminal board installed in chamber “A”.
   - If the wired remote controller is installed, be sure to put off the SW2 of PCB option switch.
   - Remove the centralized controllers installed at chamber “B” to chamber “P” if any except the A chamber.
   - Adjust the address of rotary switch of indoor unit PCB to “0”.
   - Connect O1 and O2 of terminal board installed in chamber A to O1 and O2 of terminal board installed in chamber B.
   - Continue to connect O1 and O2 of terminal board mounted on indoor unit in chamber B ~ P.

2. Setting at centralized control side
   - Adjust the applicable level of centralized controller with the reference of the table.

3. When the setting is finished at indoor unit and centralized controller,
   - Put on the power of installation completed set of each chamber.
   - Put on the power of centralized controller.

DIP SWITCH	SW1	SW2	SW3	SW4	REMARK
LEVEL 0	OFF	OFF	OFF	OFF	Set operation according to the final controlled one among the centralized controller, wire, and wireless remote controller
LEVEL 1	OFF	OFF	OFF	ON	When centralized controller OFF : disable to control wired and wireless remote controller When centralized controller ON : enable to control wired and wireless remote controller
LEVEL 2	OFF	OFF	ON	OFF	Enable to control only in the centralized controller Disable to control the wired and wireless remote controller

Error Code	Meaning	Checking Area
LED flickering	Communication error between indoor unit and centralized controller	Transmitter, indoor unit, centralized controller

Caution :

- The communication between centralized controller and transmitter is modem method and there is no polarity but connect “O1” terminal to “O1” terminal and “O2” terminal to “O2”terminal.
- The address of transmitter mounted on each indoor unit shall not be duplicated.
- After the resetting of operation level of centralized controller, it is not necessary to reset the power differently from that of wired remote controller. In other words, the operation level can be reset even during the operation if required.

MEMO

4. Troubleshooting

4-1 Wired Remote Controller

If the error occurs, ◪ and the error code are displayed on the wired remote controller.
The error code blinks for 5 seconds and it disappears. If you would like to see the error code after disappearing it, press the Test button.

Meaning of Error Code
The error code is composed of two-digit figures or letters. The first means (∗) an indoor unit address and the second means an error code.

Error Code	Meaning	Checking area
∗ 1	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
∗ 5	Indoor unit pipe sensor error	◆ Indoor unit pipe sensor ◆ PCB of the indoor unit
∗ 6	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
∗ 9	Float switch error	◆ Drain pump, Float switch ◆ Drain system ◆ DIP switch(SW2) of the indoor unit (The No.2 and No.3 switches must be at “ON” postion.)
∗ A	A Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
∗ C	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
∗ D	Outdoor pipe sensor error	◆ Outdoor pipe sensor ◆ PCB of the outdoor unit
∗ L	Three phase power incorrect connecting error (In case of three phase power models)	◆ Three phase power connecting ◆ PCB of the outdoor unit

Example : “39” means the address “3” indoor unit has a trouble with a float switch.

4-2 Wireless Remote Controller

If the error occurs, the indicators on the receiver & display unit displays the error.

Meaning of Error Code

Indicators			Meaning	Checking area
Timer	Operating	Filter		
◗	○	○	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
▲	▲	○	Indoor unit pipe sensor error	◆ Indoor unit pipe sensor ◆ PCB of the indoor unit
○	▲	▲	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
■	○	■	Float switch error	◆ Drain pump, Float switch ◆ Drain system
▲	○	▲	Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
■	■	○	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
○	○	◗	Outdoor pipe sensor error	◆ Outdoor pipe sensor ◆ PCB of the outdoor unit
○	■	■	Three phase power incorrect connecting error (In case of three phase power models)	◆ Three phase power connecting ◆ PCB of the outdoor unit

○ : OFF ◗ : Blinking ▲▲ : Blinking at once ■■ : Blinking alternately

4-3 Outdoor Unit

Meaning of Error Code
Indicated in Outdoor PCB in case of error occured

Error Code	Meaning	Checking area
E1	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
E5	Indoor unit pipe sensor error	◆ Indoor unit pipe sensor ◆ PCB of the indoor unit
E6	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
E9	Float switch error	◆ Drain pump, Float switch ◆ Drain system
EA	A Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
EC	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
ED	Outdoor pipe sensor error	◆ Outdoor pipe sensor ◆ PCB of the outdoor unit
EL	Three phase power incorrect connecting error (In case of three phase power models)	◆ Three phase power connecting ◆ PCB of the outdoor unit

4-4 Reading temperature from sensor

Press tact switch on the outdoor PCB

Press once	Outside temperature from outdoor thermistor sensor
Press twice	Outdoor unit coil temperature from outdoor pipe sensor
Press three times	Defrost setting option/Power type
Press four times	Indoor unit coil temperature from indoor pipe sensor
Press five times	Indoor unit setting temperature
Press six times	Inside temperature from indoor thermistor sensor

■ Trouble shooting by outdoor unit error code

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
E1	Indoor unit room thermistor error	EC01
E5	Indoor unit pipe thermistor error	EC02
E6	Outdoor unit thermistor error	EC03
E9	Float switch open error	EC04
EA	Communication error between indoor unit and outdoor unit	EC05
EC	Communication error between wired remote controller and indoor unit	EC06
ED	Outdoor unit pipe thermistor error	EC07

■ Trouble shooting by indoor unit receiver & Display unit

ERROR CODE	ERROR CODE	REFERENCE PART
Reservation LED flickering(1Hz period)	Indoor temperature sensor abnormal	EC01
Operation LED and reservation LED flickering (1Hz period)	Indoor pipe temperature sensor abnormal	EC02
Operation LED and filter LED flickering (1Hz period)	Outdoor temperature sensor abnormal	EC03
Reservation LED filter LED alternating flickering (1Hz period)	Float switch open abnormal	EC04
Reservation LED and filter LED flickering (1Hz period)	Indoor and outdoor communication abnormal	EC05
Operation LED and reservation LED alternating flickering (1Hz period)	Wired remote controller communication abnormal	EC06
Filter LED flickering (1Hz period)	Outdoor pipe temperature sensor abnormal	EC07

■ Trouble shooting by wired remote controller error code

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
*1	Indoor unit room thermistor error	EC01
*5	Indoor unit pipe thermistor error	EC02
*6	Outdoor unit thermistor error	EC03
*9	Float switch open error	EC04
*A	Communication error between indoor unit and outdoor unit	EC05
*C	Communication error between wired remote controller and indoor unit	EC06
*D	Outdoor unit pipe thermistor error	EC07

✻ The asterisk mark " * " + "ERROR" CODE of wired remote controller stands for the set number.
ex) ERROR CODE "39" is the FLOAT SWITCH OPEN ERROR of SET no.3.

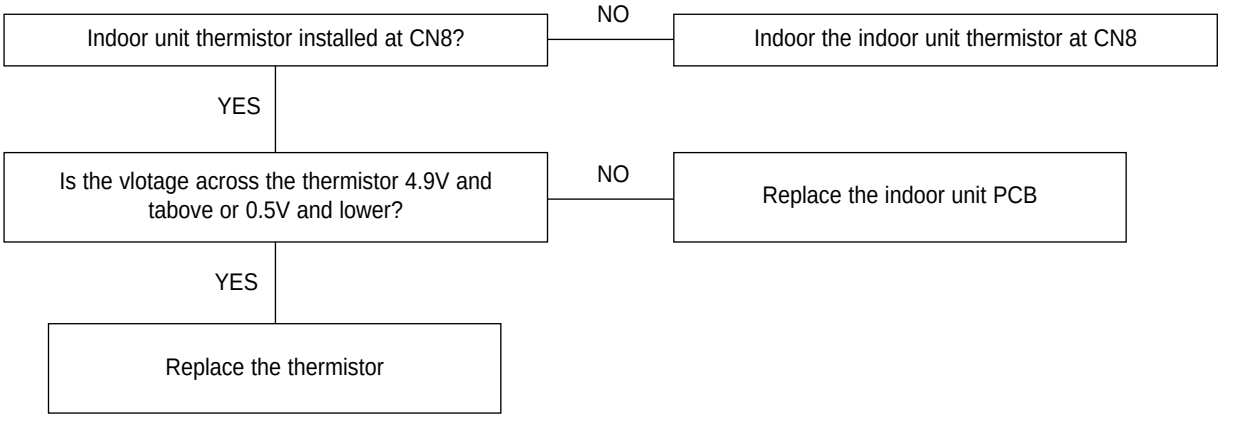
■ Trouble shooting by centralized controller

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
LED flickering	Communication error between indoor unit and centralized controller	EC19

■ EC01 : Trouble on the thermistor related part of indoor unit.

- EC01 : Trouble on the room thermistor related part of indoor unit.
  - E1 of outdoor unit PCB 7-segment
  - Reservation lamp of wireless receiving board is flickering with 1 Hz.
  - Action items when "*1" displays on the wired remote controller.

Check point :
- Defect of indoor unit
- Indoor unit thermistor defect

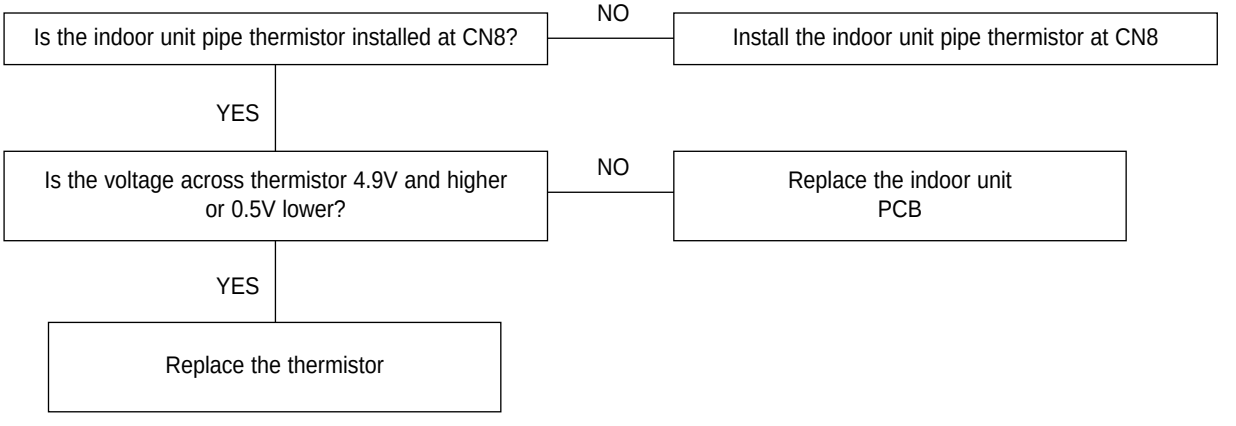

Indoor unit thermistor installed at CN8?
NO
Indoor the indoor unit thermistor at CN8
YES
Is the vlotage across the thermistor 4.9V and tabove or 0.5V and lower?
NO
Replace the indoor unit PCB
YES
Replace the thermistor

✻ "*" stands for the indoor unit address.

■ EC02 : Trouble on the pipe thermistor related part of indoor unit.

- E5 of outdoor unit PCB 7-segment.
- Reservation lamp of wireless receiving board is flickering with 1 Hz.
- Action items when "*5" displays on the wired remote controller.

Check point :
- Indoor unit PCB defect
- Indoor unit pipe thermistor defect

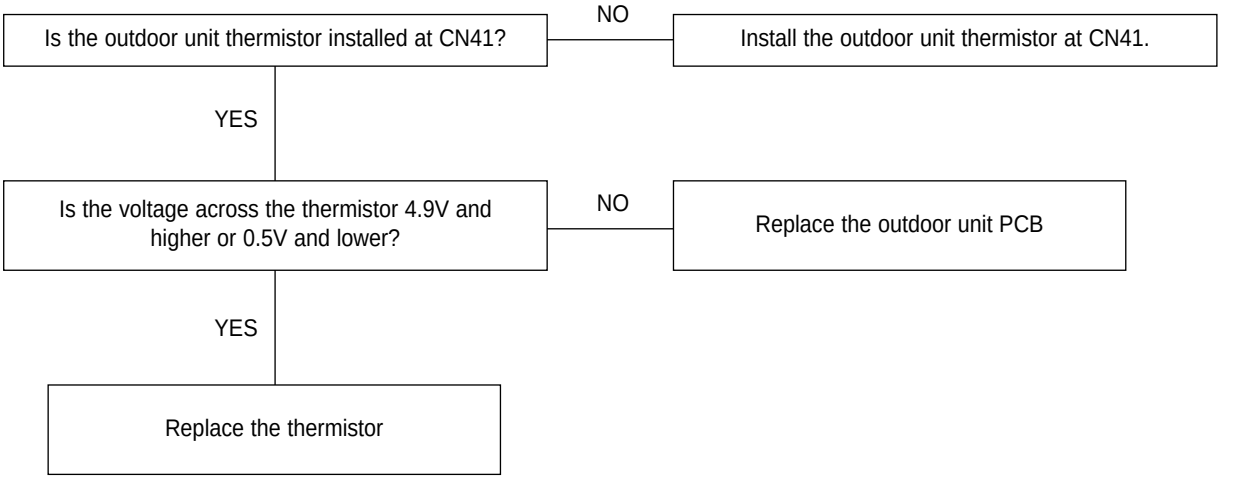

Is the indoor unit pipe thermistor installed at CN8?
NO
Install the indoor unit pipe thermistor at CN8
YES
Is the voltage across thermistor 4.9V and higher or 0.5V lower?
NO
Replace the indoor unit PCB
YES
Replace the thermistor

■ EC03 : When the trouble is found on the part related to the outdoor unit thermistor.

- E6 of outdoor unit PCB 7-segment
- Operation lamp and filter lamp of wireless receiving board are flickering with 1Hz.
- Action items when “*6” displays on the wired remote controller.

Check point :

- Defect of indoor unit
- Indoor unit thermistor defect


Is the outdoor unit thermistor installed at CN41?
NO
Install the outdoor unit thermistor at CN41.
YES
Is the voltage across the thermistor 4.9V and higher or 0.5V and lower?
NO
Replace the outdoor unit PCB
YES
Replace the thermistor

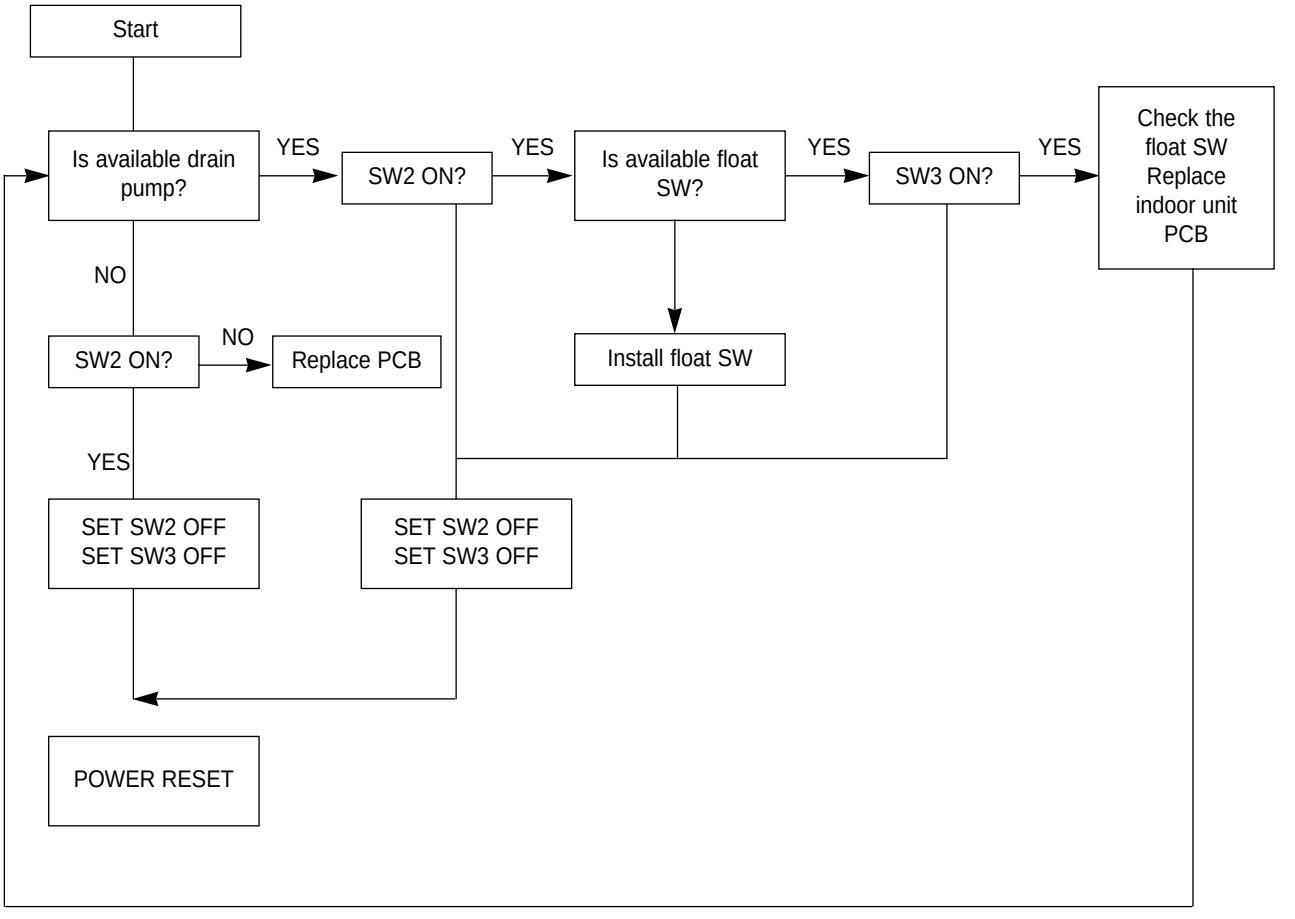
✻ “*” stands for the indoor unit address.

■ EC04 : When the trouble is found on the drain pump and float switch installed on the indoor unit.

EC01 : Trouble on the thermistor related part of indoor unit.
- E9 of 7-segment of outdoor unit PCB.
- Reservation lamp of wireless receiving board and filter lamp are flickering with 1 Hz.
- Action item when “*9” displays on the wireless remote controller.

Check point :

- Indoor unit defect
- Drain pump, float switch defect



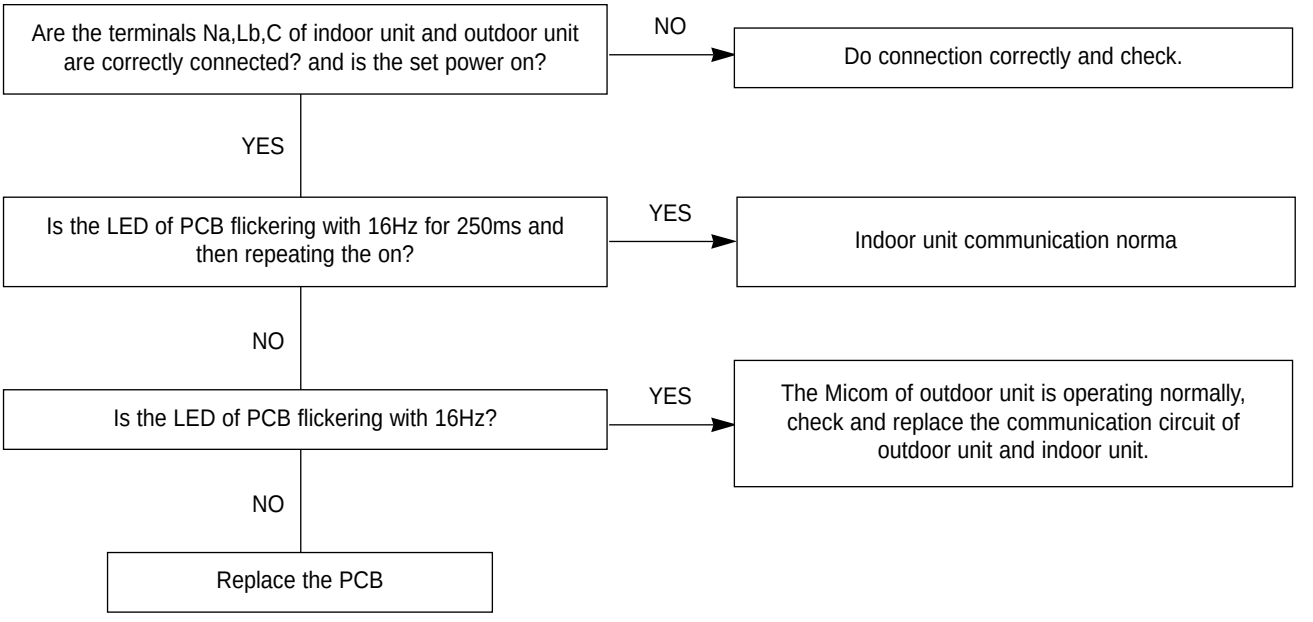
✻ “*” stands for the indoor unit address.

■ EC05 : When the trouble is found in the communication related part between indoor unit and outdoor unit.

- EA of 7-segment of outdoor unit PCB.
- Reservation lamp and filter lamp of wireless receiving board is flickering with 1 Hz.
- Action item when “*A” displays on the wired remote controller.

Check point :

- Indoor unit ↔ outdoor unit mis-connection
- Indoor unit PCB defect
- Outdoor unit PCB defect


Are the terminals Na,Lb,C of indoor unit and outdoor unit are correctly connected? and is the set power on?
NO
Do connection correctly and check.
YES
Is the LED of PCB flickering with 16Hz for 250ms and then repeating the on?
YES
Indoor unit communication norma
NO
Is the LED of PCB flickering with 16Hz?
YES
The Micom of outdoor unit is operating normally, check and replace the communication circuit of outdoor unit and indoor unit.
NO
Replace the PCB

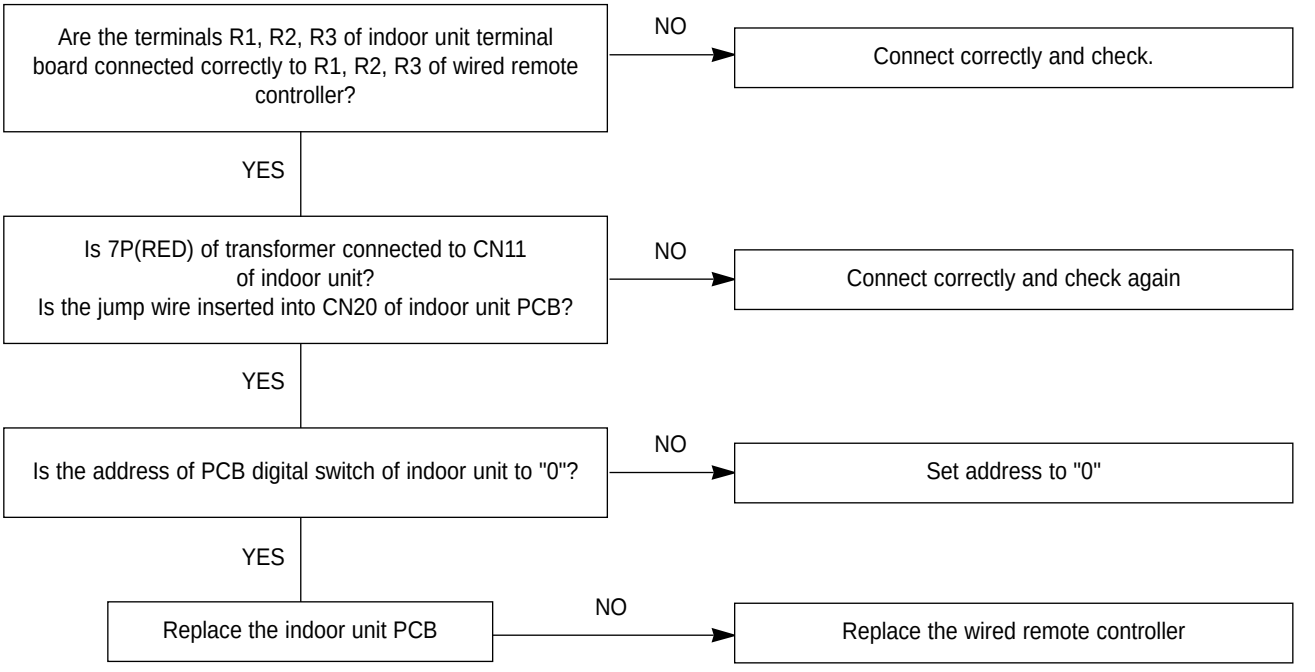
✻ “*” stands for the indoor unit address.

■ EC06 : When the trouble is found in the communication related part between indoor unit and wired remote controller. (during single operation, not group control)

- EC of 7-segment of outdoor unit PCB.
- Wireless receiving board lamp and reservation lamp is flickering with 1Hz.
- Action item when “C” displays on the wired remote controller.

Check point :

- Short circuit or mis-connection of the communication line between indoor unit and wireless remote controller
- Indoor unit PCB defect
- Wired remote controller PCB defect


Are the terminals R1, R2, R3 of indoor unit terminal board connected correctly to R1, R2, R3 of wired remote controller?
NO
Connect correctly and check.
YES
Is 7P(RED) of transformer connected to CN11 of indoor unit?
Is the jump wire inserted into CN20 of indoor unit PCB?
NO
Connect correctly and check again
YES
Is the address of PCB digital switch of indoor unit to "0"?
NO
Set address to "0"
YES
Replace the indoor unit PCB
NO
Replace the wired remote controller

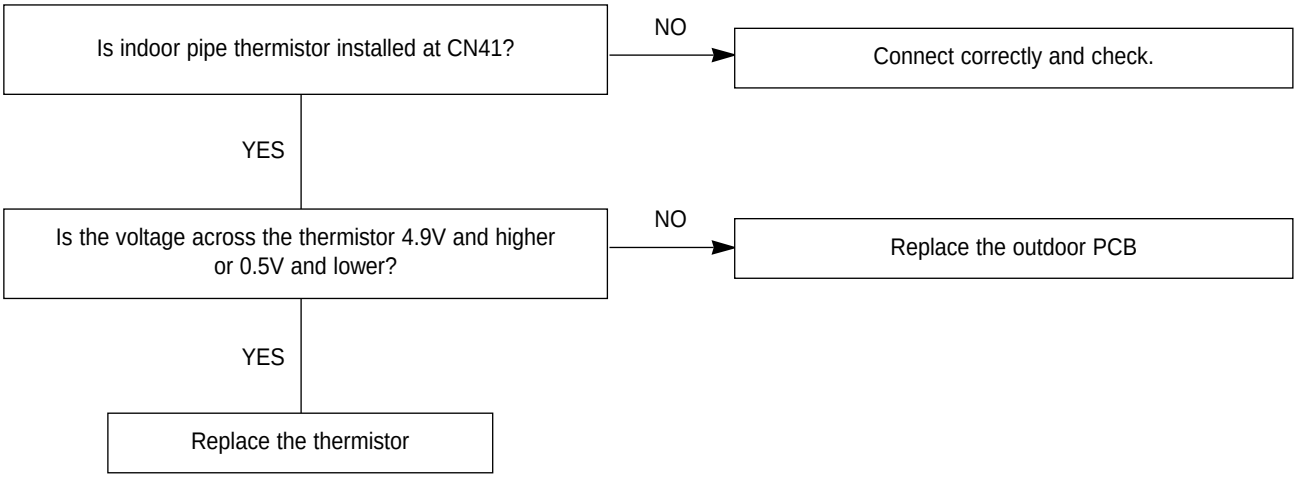
✻ “0” stands for the indoor unit address.

■ EC07 : When the trouble is found in the communication related part between outdoor unit pipe thermistor.

- ED of 7-segment of outdoor unit PCB.
- Reservation lamp and filter lamp of wireless receiving board is flickering with 1Hz.
- Action item when “D” displays on the wired remote controller.

Check point :

- Indoor unit pipe thermistor available or not
- Indoor unit PCB defect

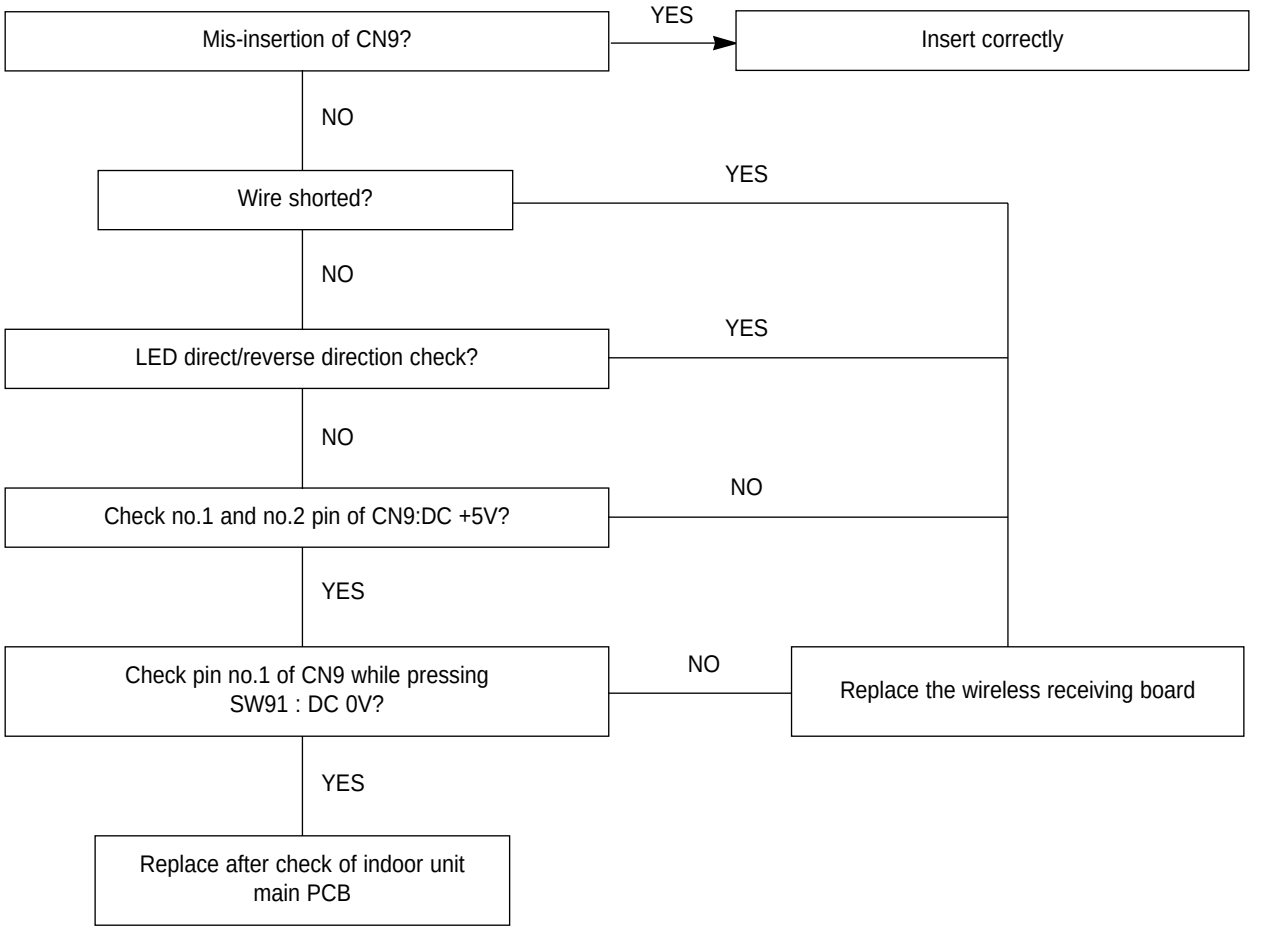


✻ “*” stands for the indoor unit address.

■ EC08 : When the trouble is found on the part related to the wireless receiving board of the indoor unit.

Check point :

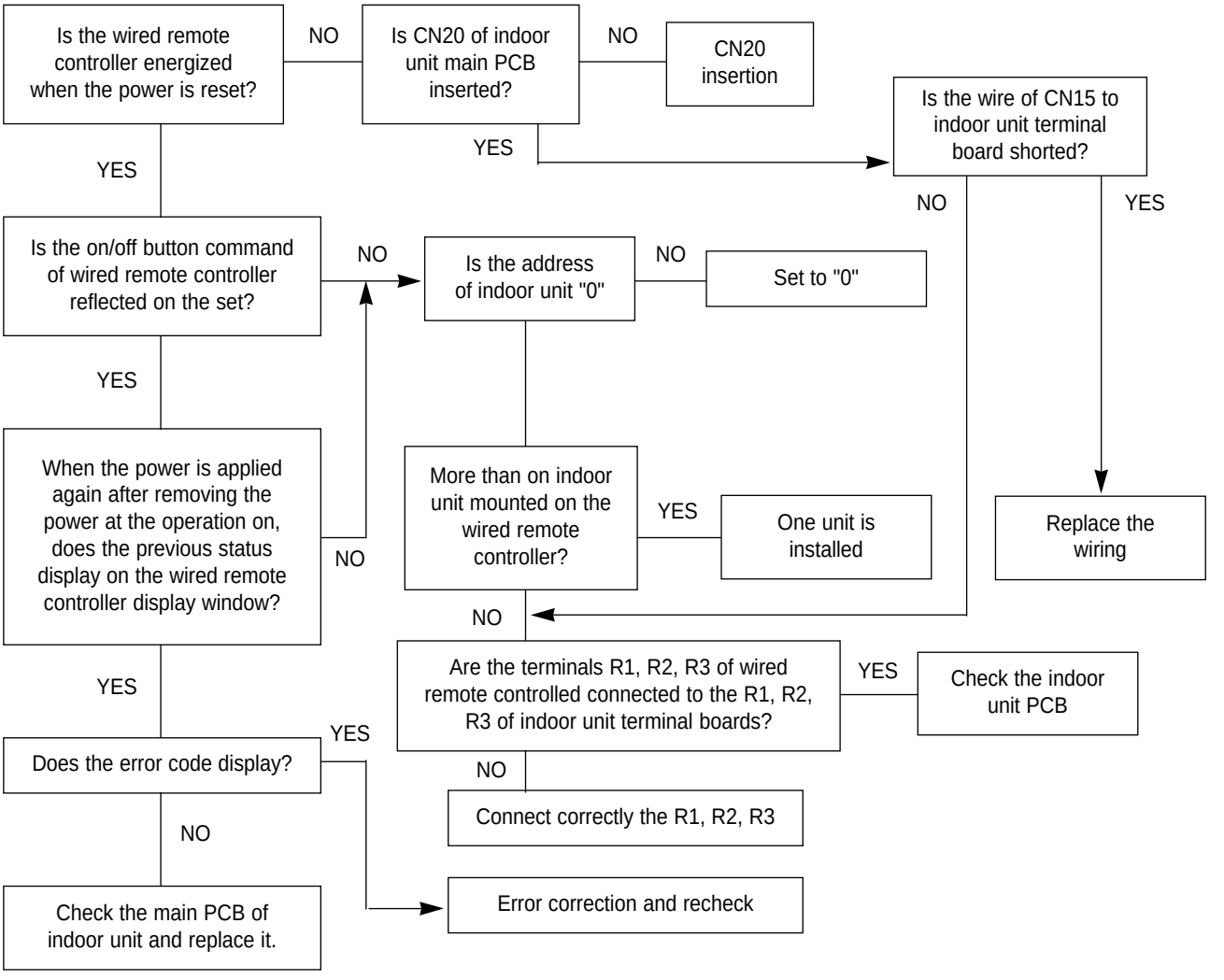
- Defect of wireless remote controller PCB
- Defect of wireless remote controller receiving board PCB
- Indoor unit PCB defect



■ EC09 : When the trouble is found on the part related to the wired remote controller. (single operation)

Check point :

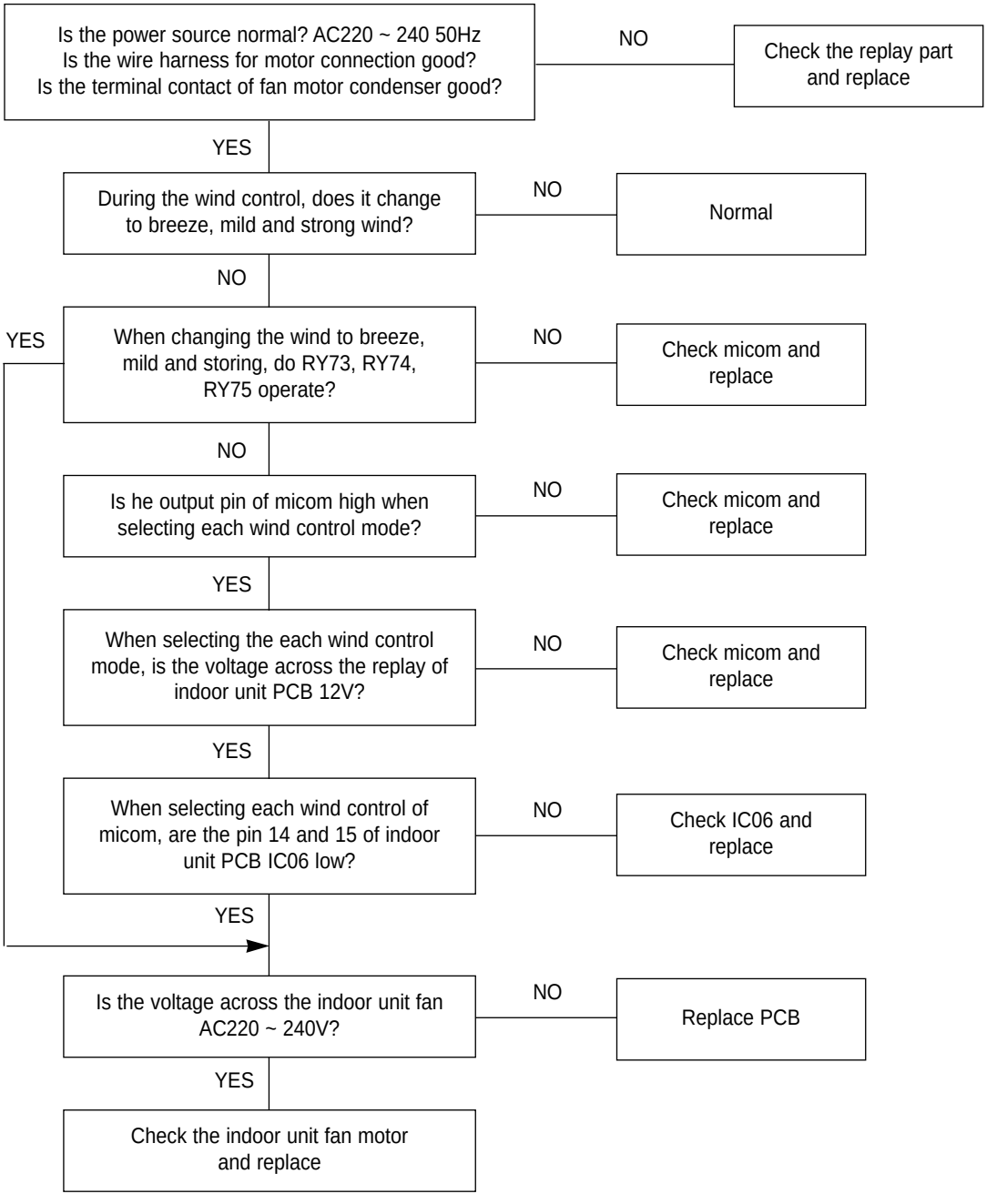
- Defect of communication line between indoor unit and wired remote controller.
- Output of indoor unit Micom
- Defect of wired remote controller PCB
- Indoor unit PCB defect


Is the wired remote controller energized when the power is reset?
NO
Is CN20 of indoor unit main PCB inserted?
NO
CN20 insertion
YES
Is the wire of CN15 to indoor unit terminal board shorted?
NO
YES
YES
Is the on/off button command of wired remote controller reflected on the set?
NO
Is the address of indoor unit "0"
NO
Set to "0"
YES
When the power is applied again after removing the power at the operation on, does the previous status display on the wired remote controller display window?
NO
More than on indoor unit mounted on the wired remote controller?
YES
One unit is installed
Replace the wiring
NO
YES
Are the terminals R1, R2, R3 of wired remote controlled connected to the R1, R2, R3 of indoor unit terminal boards?
YES
Check the indoor unit PCB
YES
Does the error code display?
NO
Connect correctly the R1, R2, R3
NO
Error correction and recheck
Check the main PCB of indoor unit and replace it.

■ EC10 : When the trouble is found on the part related to the fan motor of indoor unit.

Chec point :

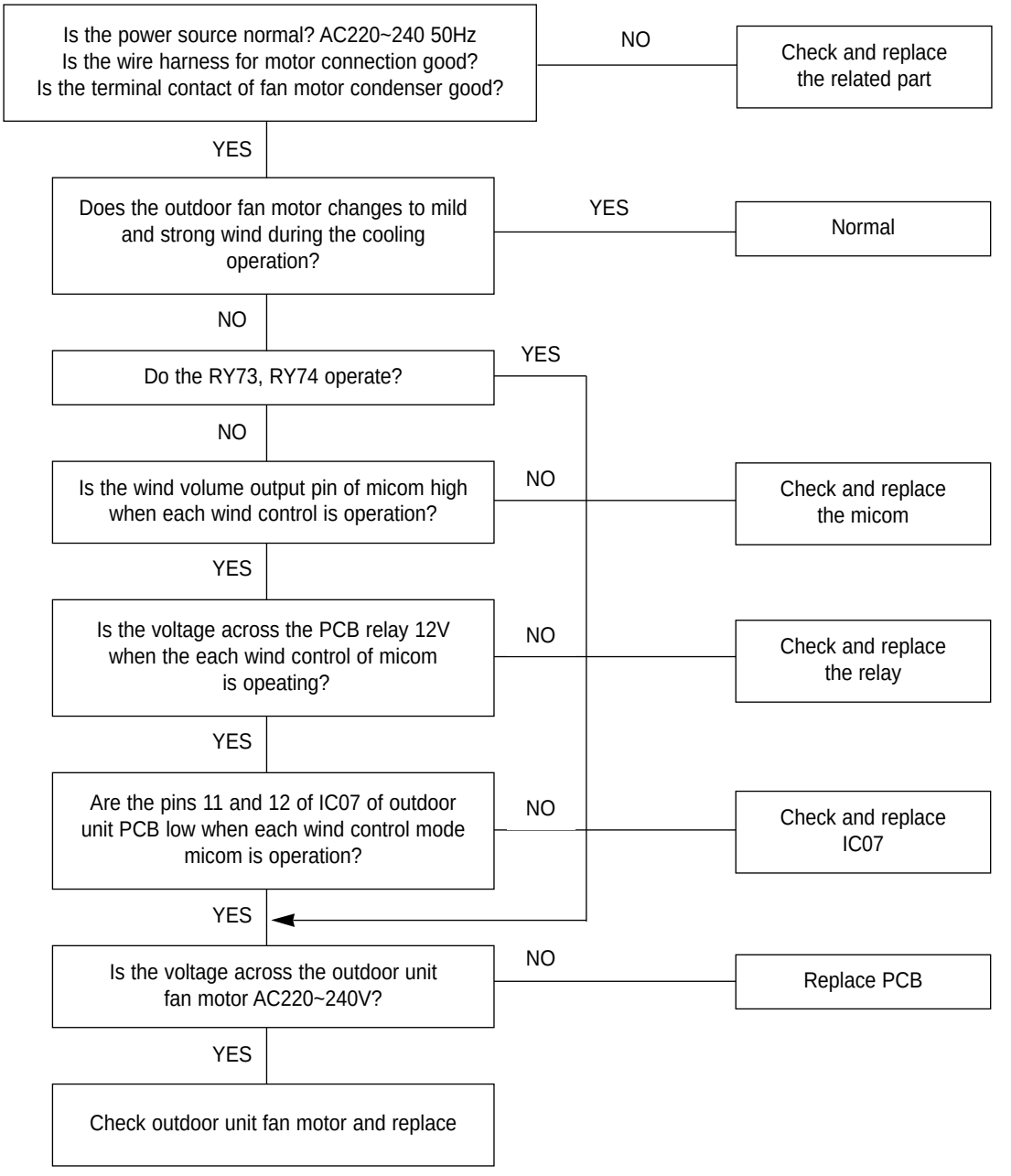
- Defect of PCB relay of indoor unit.
- Output of indoor unit Micom
- Indoor fan motor defect
- Defect of PCB IC06 of indoor unit


Is the power source normal? AC220 ~ 240 50Hz
Is the wire harness for motor connection good?
Is the terminal contact of fan motor condenser good?
NO
Check the replay part and replace
YES
During the wind control, does it change to breeze, mild and strong wind?
NO
Normal
NO
YES
When changing the wind to breeze, mild and storing, do RY73, RY74, RY75 operate?
NO
Check micom and replace
NO
Is he output pin of micom high when selecting each wind control mode?
NO
Check micom and replace
YES
When selecting the each wind control mode, is the voltage across the replay of indoor unit PCB 12V?
NO
Check micom and replace
YES
When selecting each wind control of micom, are the pin 14 and 15 of indoor unit PCB IC06 low?
NO
Check IC06 and replace
YES
Is the voltage across the indoor unit fan AC220 ~ 240V?
NO
Replace PCB
YES
Check the indoor unit fan motor and replace

■ EC11 : When the trouble is found on the part related to the fan motor of outdoor unit.

Check point :

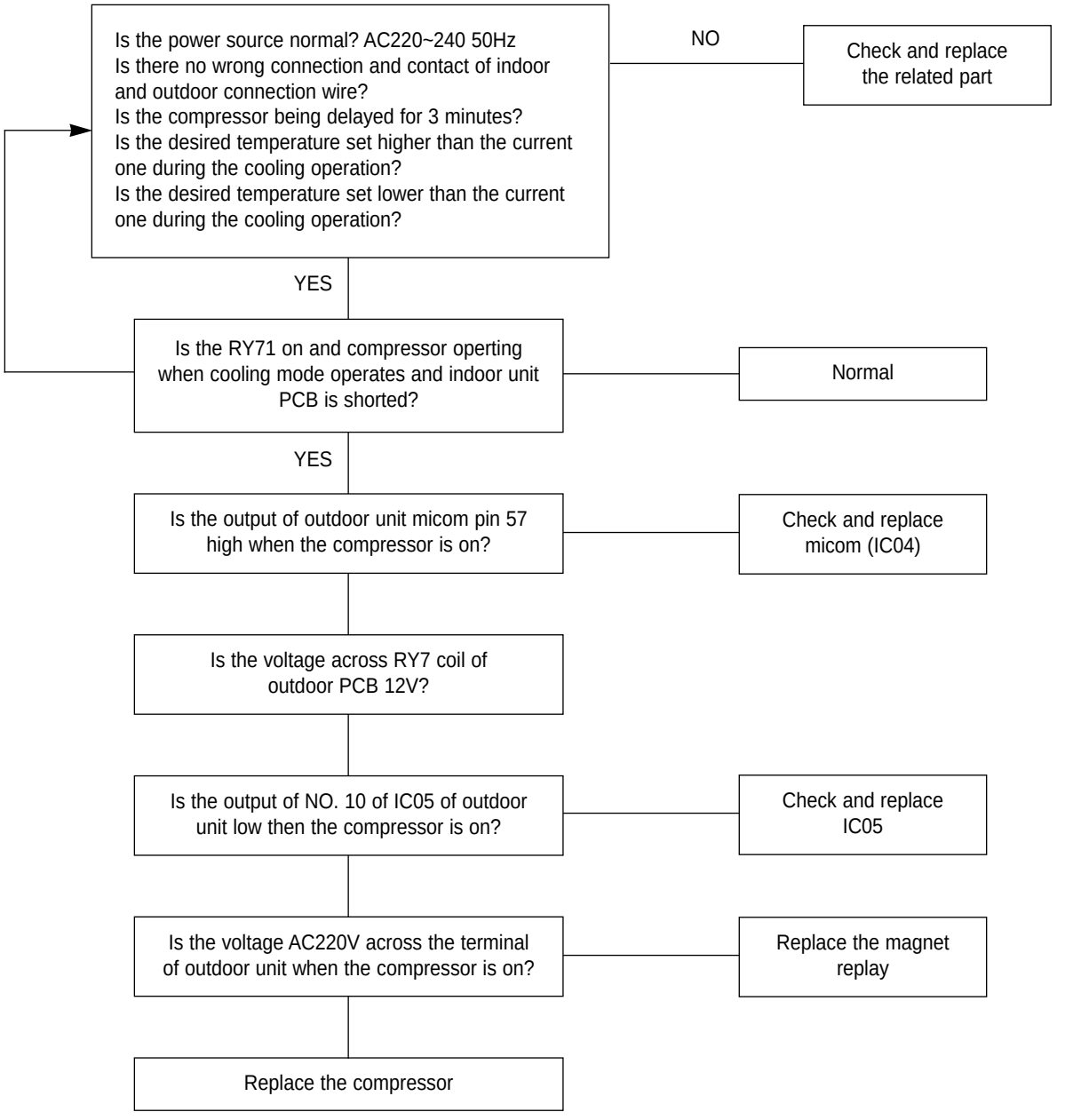
- Outdoor unit PCB relay defect
- Output of outdoor unit micom
- Outdoor unit fan motor defect
- Defect of IC07 of outdoor unit PCB


Is the power source normal? AC220~240 50Hz
Is the wire harness for motor connection good?
Is the terminal contact of fan motor condenser good?
NO
Check and replace the related part
YES
Does the outdoor fan motor changes to mild and strong wind during the cooling operation?
YES
Normal
NO
Do the RY73, RY74 operate?
YES
NO
Is the wind volume output pin of micom high when each wind control is operation?
NO
Check and replace the micom
YES
Is the voltage across the PCB relay 12V when the each wind control of micom is opeating?
NO
Check and replace the relay
YES
Are the pins 11 and 12 of IC07 of outdoor unit PCB low when each wind control mode micom is operation?
NO
Check and replace IC07
YES
Is the voltage across the outdoor unit fan motor AC220~240V?
NO
Replace PCB
YES
Check outdoor unit fan motor and replace

■ EC12 : When the trouble is found on the part related to comp of outdoor unit.

Check point :

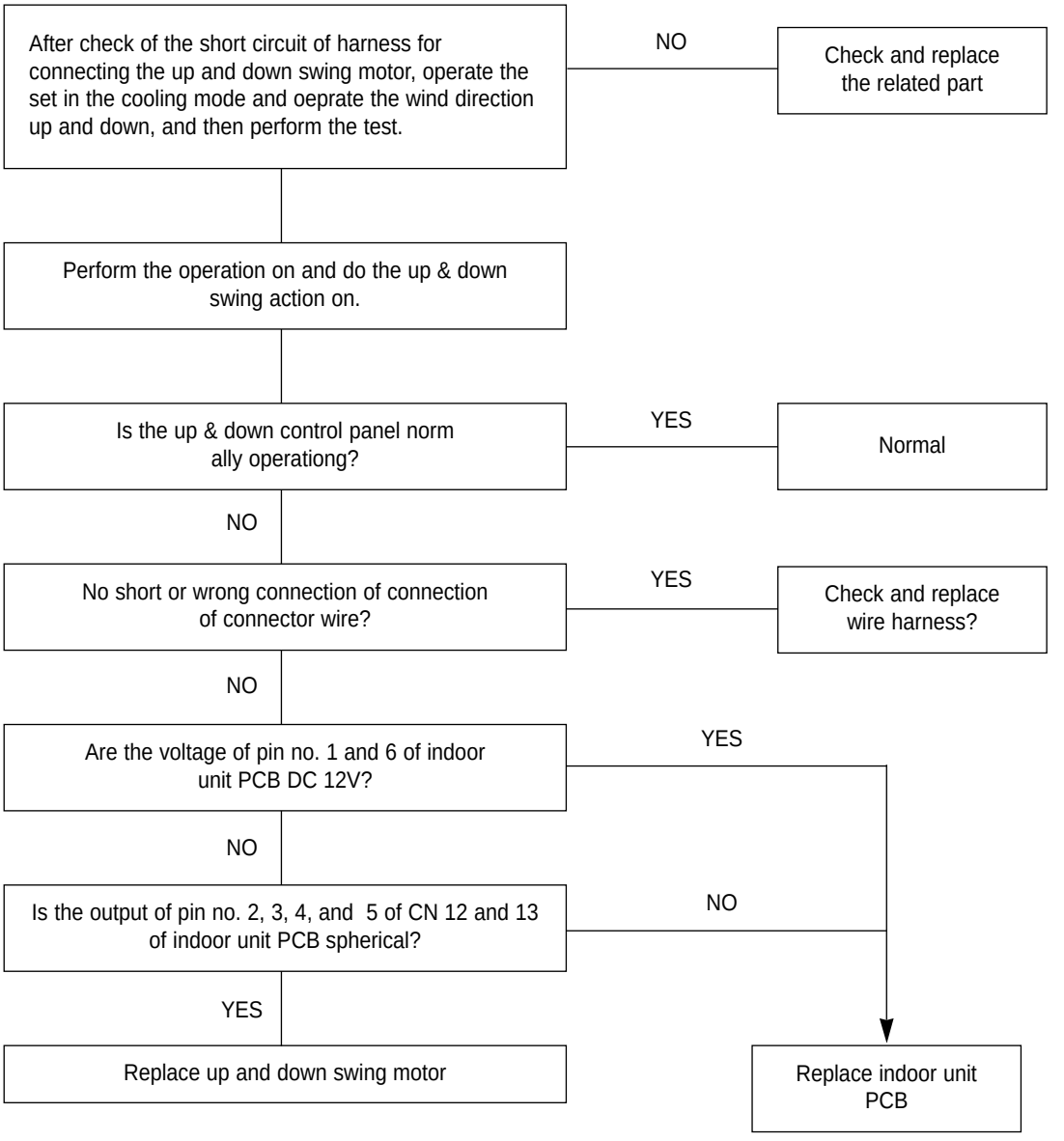
- Indoor unit PCB relay defect
- Output of indoor unit micom
- Comp defect
- Magnet switch defect


Is the power source normal? AC220~240 50Hz
Is there no wrong connection and contact of indoor and outdoor connection wire?
Is the compressor being delayed for 3 minutes?
Is the desired temperature set higher than the current one during the cooling operation?
Is the desired temperature set lower than the current one during the cooling operation?
NO
Check and replace the related part
YES
Is the RY71 on and compressor operting when cooling mode operates and indoor unit PCB is shorted?
Normal
YES
Is the output of outdoor unit micom pin 57 high when the compressor is on?
Check and replace micom (IC04)
Is the voltage across RY7 coil of outdoor PCB 12V?
Is the output of NO. 10 of IC05 of outdoor unit low then the compressor is on?
Check and replace IC05
Is the voltage AC220V across the terminal of outdoor unit when the compressor is on?
Replace the magnet replay
Replace the compressor

■ EC13 : When the trouble is found on the part related to the up & down swing motor of indoor unit (cassette model)

Check point :

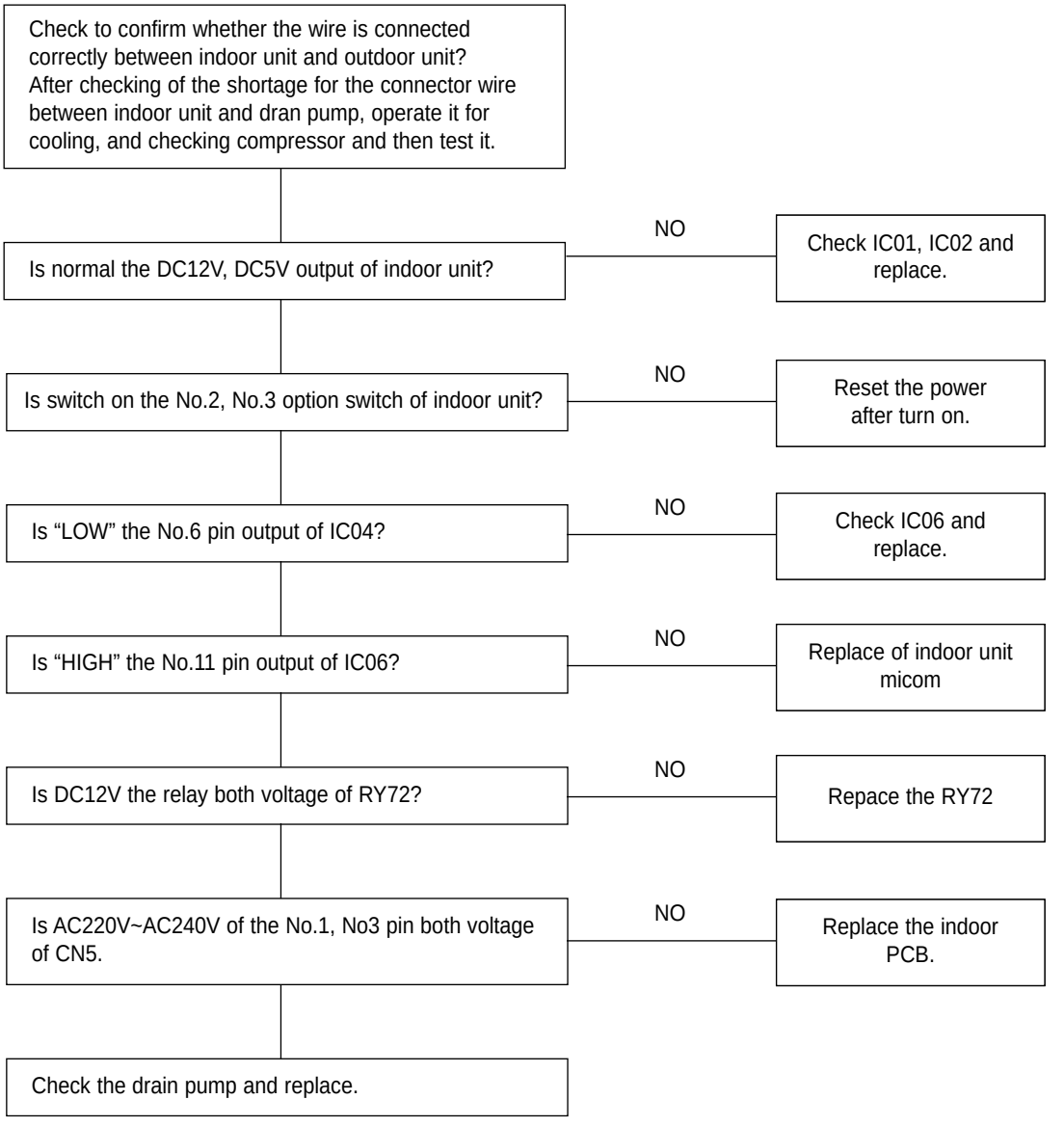
- Wire short between indoor unit PCB up & down swing motor connector or bad contact.
- Output of indoor unit micom
- Defect of up and down swing motor


After check of the short circuit of harness for connecting the up and down swing motor, operate the set in the cooling mode and oeprate the wind direction up and down, and then perform the test.
NO
Check and replace the related part
Perform the operation on and do the up & down swing action on.
Is the up & down control panel norm ally operationg?
YES
Normal
NO
No short or wrong connection of connection of connector wire?
YES
Check and replace wire harness?
NO
Are the voltage of pin no. 1 and 6 of indoor unit PCB DC 12V?
YES
NO
Is the output of pin no. 2, 3, 4, and 5 of CN 12 and 13 of indoor unit PCB spherical?
NO
YES
Replace up and down swing motor
Replace indoor unit PCB

■ EC14 : When the trouble is found on the part related to drain pump of indoor unit.

Check point :

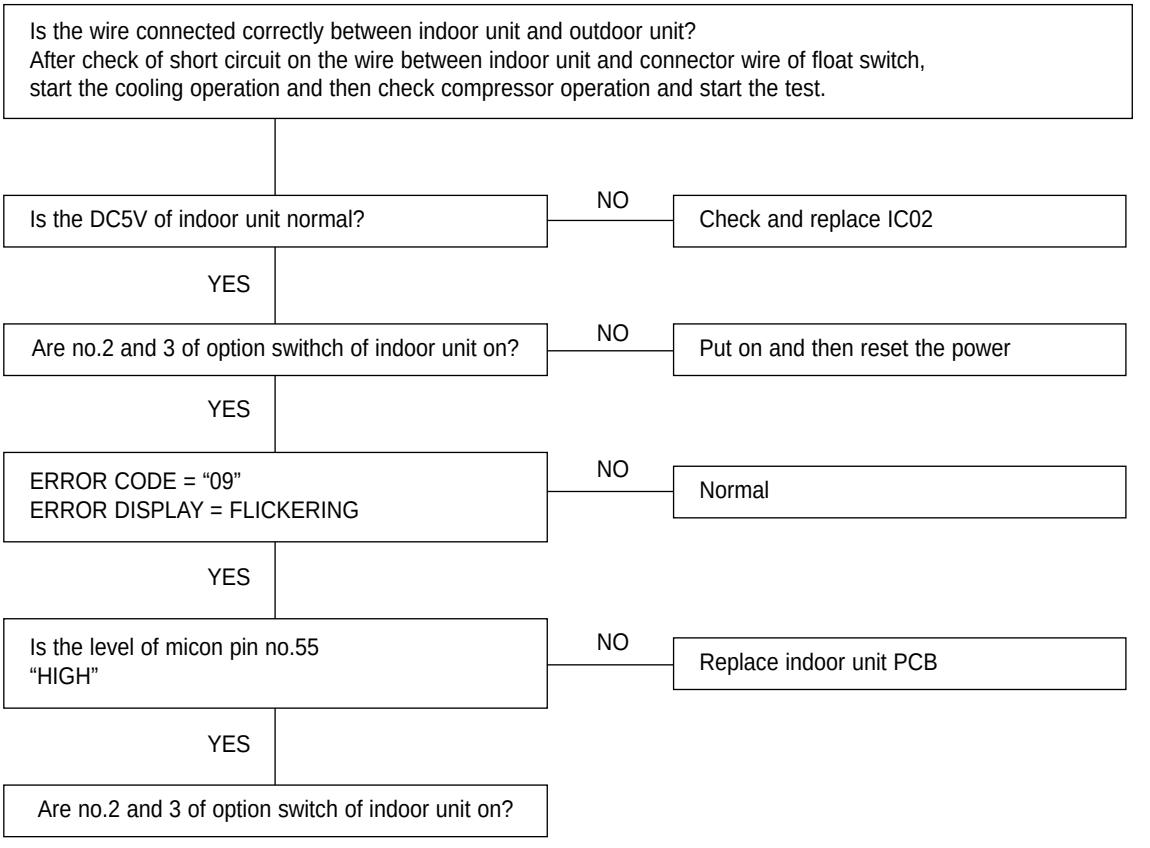
- Indoor unit PCB ↔ Drain pump connector wire, indoor unit Micom No.6 Pin output, IC06 No.6 Pin output.
- Drain pump, RY72, DC12V power, AC220~240V 50Hz power, indoor unit option switch.


Check to confirm whether the wire is connected correctly between indoor unit and outdoor unit? After checking of the shortage for the connector wire between indoor unit and dran pump, operate it for cooling, and checking compressor and then test it.
Is normal the DC12V, DC5V output of indoor unit?
NO
Check IC01, IC02 and replace.
Is switch on the No.2, No.3 option switch of indoor unit?
NO
Reset the power after turn on.
Is “LOW” the No.6 pin output of IC04?
NO
Check IC06 and replace.
Is “HIGH” the No.11 pin output of IC06?
NO
Replace of indoor unit micom
Is DC12V the relay both voltage of RY72?
NO
Repace the RY72
Is AC220V~AC240V of the No.1, No3 pin both voltage of CN5.
NO
Replace the indoor PCB.
Check the drain pump and replace.

■ EC15 : When the trouble is found on the part related to float switch of indoor unit.

Check point :

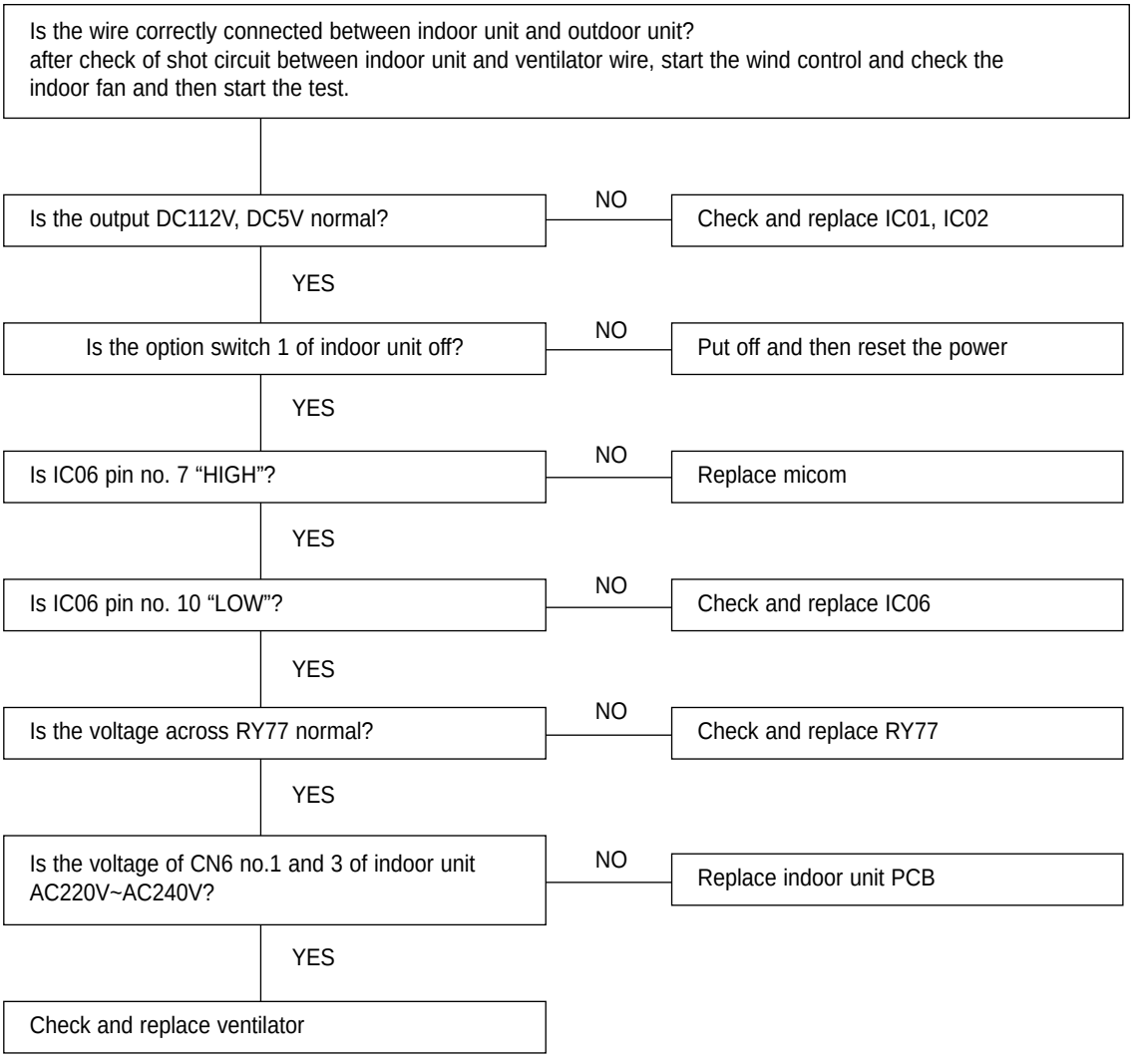
- Indoor unit PCB ↔ float switch connector wire, voltage level of indoor unit micom pin no. 55
- Float switch, DC5V power, indoor unit option switch


Is the wire connected correctly between indoor unit and outdoor unit?
After check of short circuit on the wire between indoor unit and connector wire of float switch, start the cooling operation and then check compressor operation and start the test.
Is the DC5V of indoor unit normal?
NO
Check and replace IC02
YES
Are no.2 and 3 of option swithch of indoor unit on?
NO
Put on and then reset the power
YES
ERROR CODE = “09”
ERROR DISPLAY = FLICKERING
NO
Normal
YES
Is the level of micon pin no.55 “HIGH”
NO
Replace indoor unit PCB
YES
Are no.2 and 3 of option switch of indoor unit on?

■ EC16 : When the trouble is found on the part related to ventilator of indoor unit.

Check point :

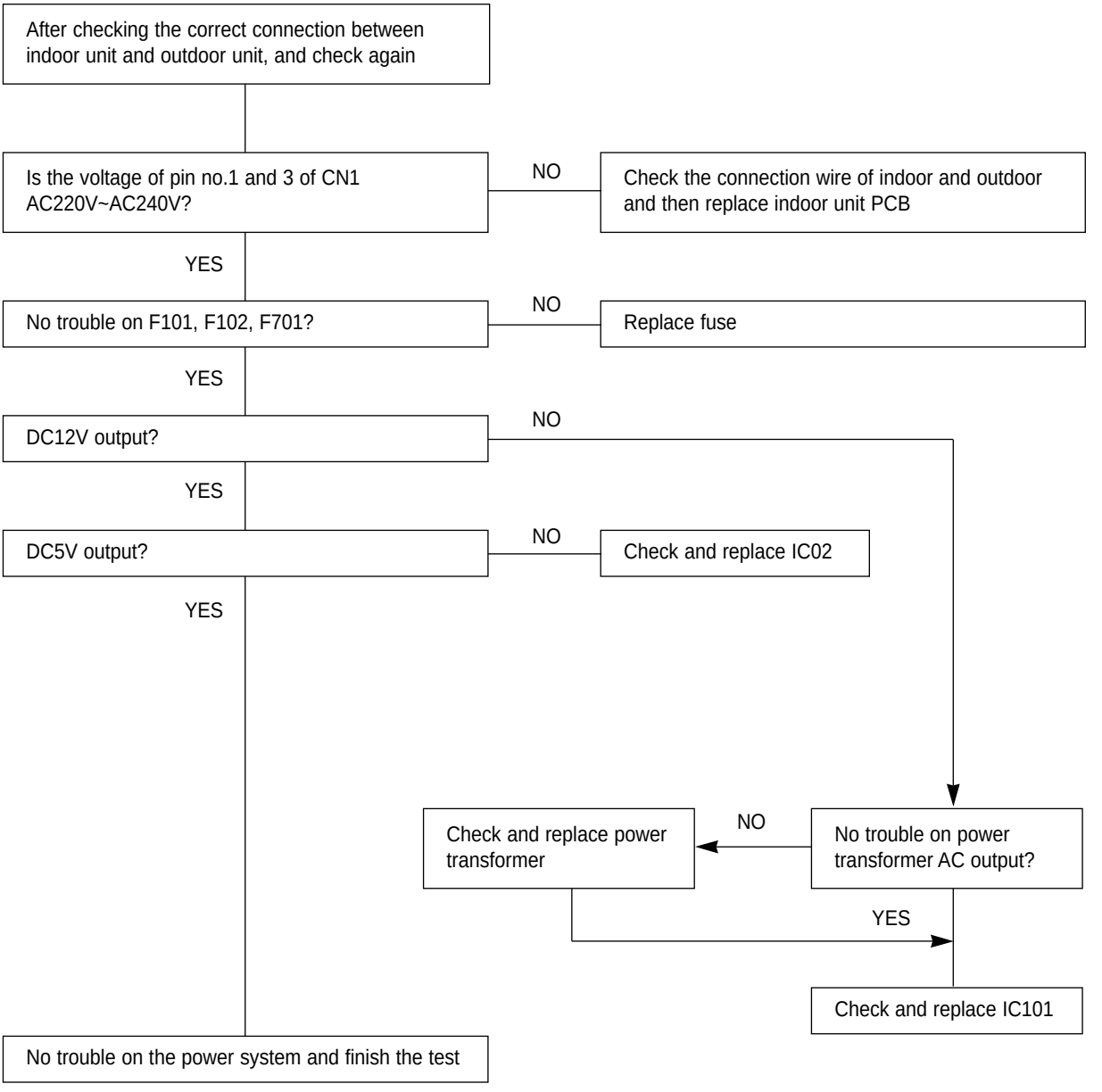
- Indoor unit PCB ↔ ventilator connector wire, output voltage of indoor unit micom pin No. 5
- Ventilator, DC 12V power, DC5V power, indoor unit option switch.


Is the wire correctly connected between indoor unit and outdoor unit?
after check of shot circuit between indoor unit and ventilator wire, start the wind control and check the indoor fan and then start the test.
Is the output DC112V, DC5V normal?
NO
Check and replace IC01, IC02
YES
Is the option switch 1 of indoor unit off?
NO
Put off and then reset the power
YES
Is IC06 pin no. 7 “HIGH”?
NO
Replace micom
YES
Is IC06 pin no. 10 “LOW”?
NO
Check and replace IC06
YES
Is the voltage across RY77 normal?
NO
Check and replace RY77
YES
Is the voltage of CN6 no.1 and 3 of indoor unit AC220V~AC240V?
NO
Replace indoor unit PCB
YES
Check and replace ventilator

■ EC17 : When the trouble is found on the part related to power system of indoor unit.

Check point :

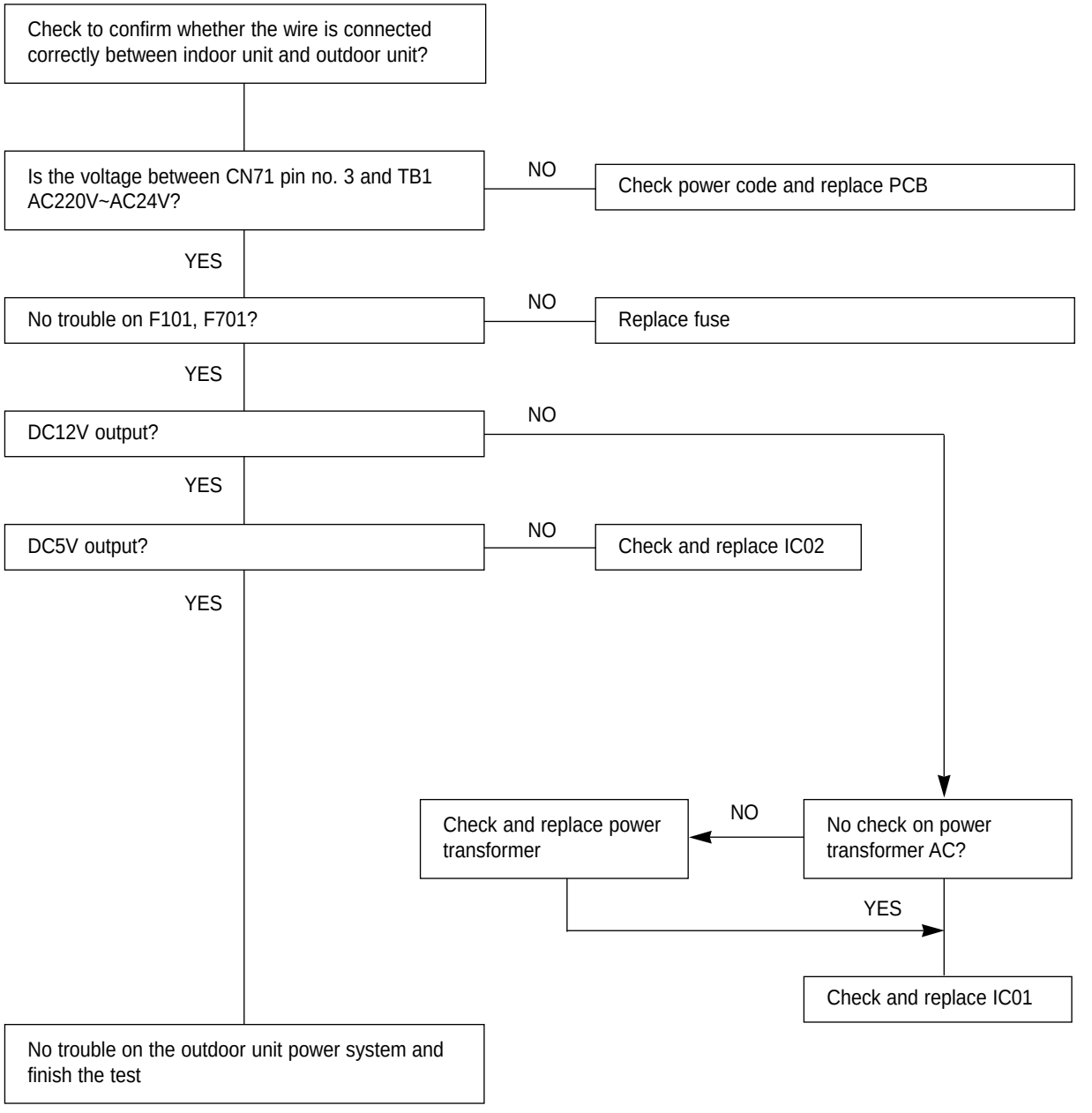
- Indoor unit AC220V~AC240V input voltage, DC12V output, DC5V output, output voltage of pin no.2 and 3 of CN15.
- Power transformer, F101, F102, F701


After checking the correct connection between indoor unit and outdoor unit, and check again
Is the voltage of pin no.1 and 3 of CN1 AC220V~AC240V?
NO
Check the connection wire of indoor and outdoor and then replace indoor unit PCB
YES
No trouble on F101, F102, F701?
NO
Replace fuse
YES
DC12V output?
NO
YES
DC5V output?
NO
Check and replace IC02
YES
Check and replace power transformer
NO
No trouble on power transformer AC output?
YES
Check and replace IC101
No trouble on the power system and finish the test

■ EC18 : When the trouble is found on the part related to power system of output unit.

Check point :

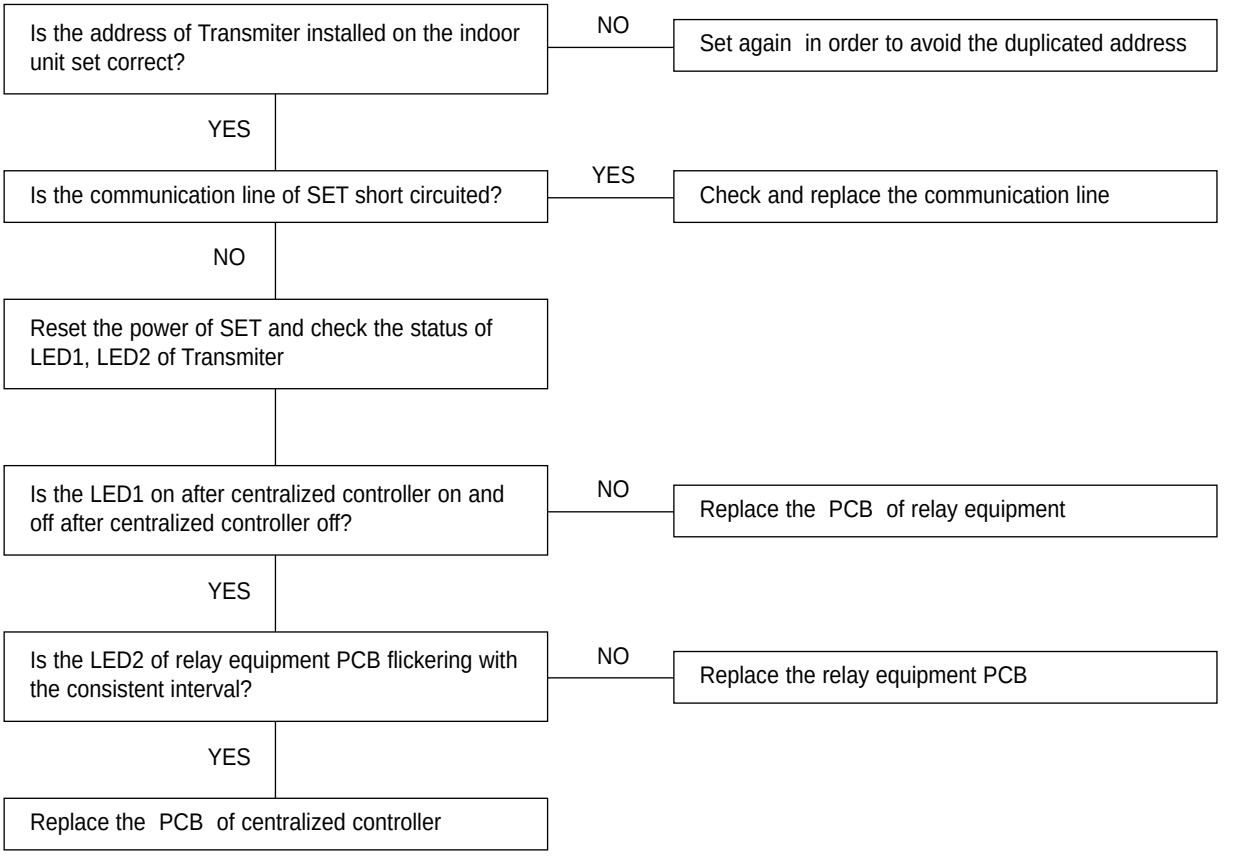
- Outdoor unit AC220V~AC240V input power, DC12V output, DC5V output
- Power transformer, F101, F701



■ EC19 : When the centralized controller lamp is flickering. (during centralized control)

Check point :

- Defect on the address assignment for the relay equipment connected with centralized controller.
- Defect on centralized controller PCB
- Defect on the indoor unit PCB

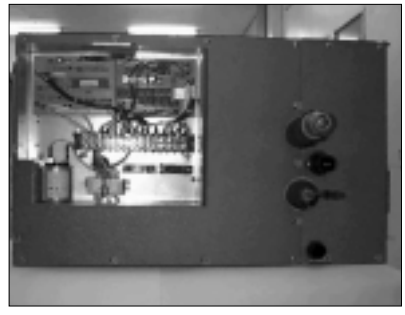
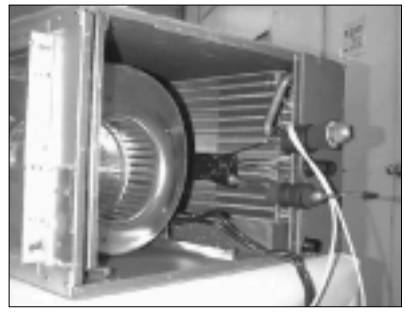

Is the address of Transmiter installed on the indoor unit set correct?
NO
Set again in order to avoid the duplicated address
YES
Is the communication line of SET short circuited?
YES
Check and replace the communication line
NO
Reset the power of SET and check the status of LED1, LED2 of Transmiter
Is the LED1 on after centralized controller on and off after centralized controller off?
NO
Replace the PCB of relay equipment
YES
Is the LED2 of relay equipment PCB flickering with the consistent interval?
NO
Replace the relay equipment PCB
YES
Replace the PCB of centralized controller

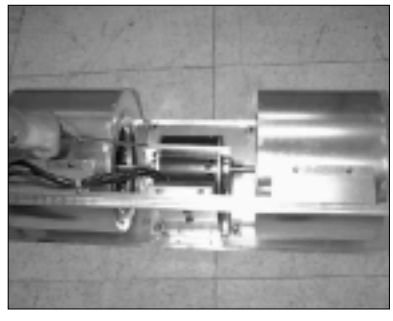
MEMO

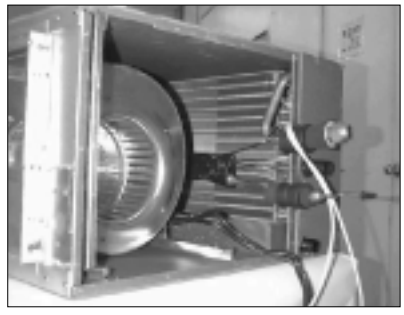
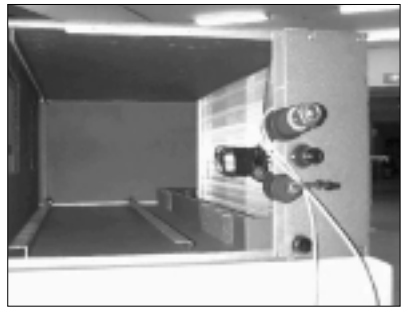
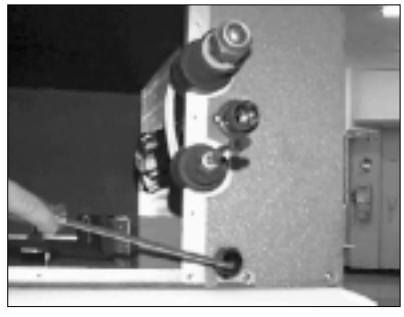
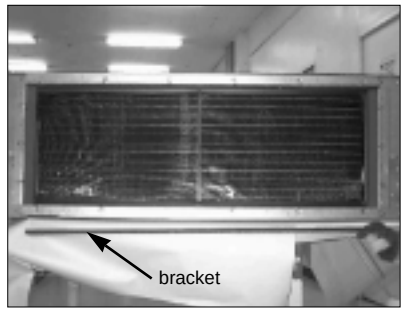
5. Disassembly and Reassembly

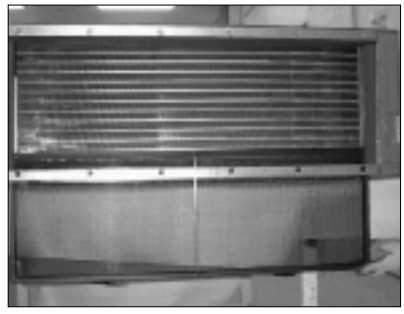
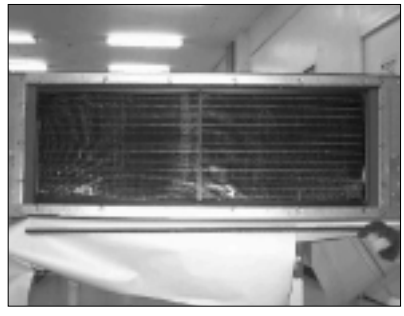
Stop the operation of air-conditioner and remove the power source cord before repairing the unit.

Indoor Unit

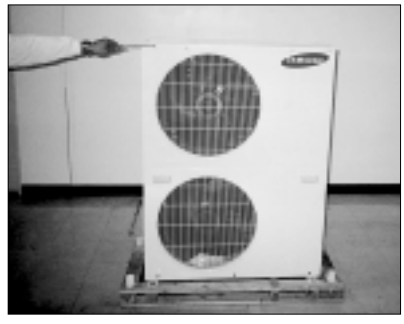
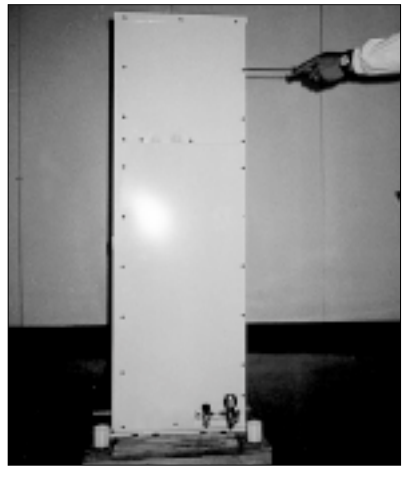
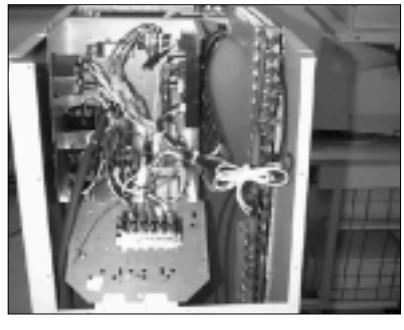
No.	Part name	Procedures	Picture
①	Disassembly of indoor unit (disassembly of the control box)	① Disassemble 1 screw for fixing the control box cover.	
		② Check internal connection of the control box.	
		③ Separate the wire connection part of the control box.(indoor motor line, indoor capacitor line/temperature sensor line)	
		④ Disassemble 14 screws on the side. And then separate the cabinet from unit.	

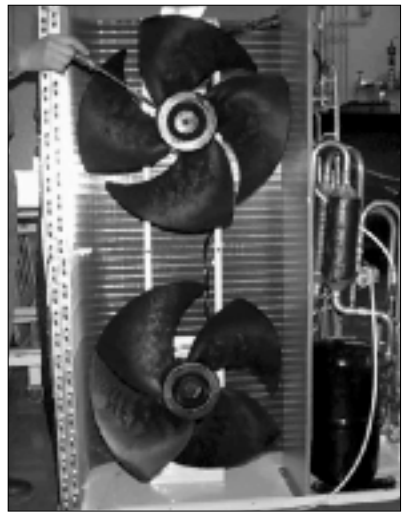
No.	Part name	Procedures	Picture
②	Fan and motor	① Separate 4 screws fixed on the unit base.	
		② Pull the panel for fixing fan and motor as following figure. Then the fan and motor panel are separated from the unit.	
		③ If the motor support was removed, the pan and motor shall be separated from the panel.	

No.	Part name	Procedures	Picture
③	Heat exchanger drain board	① Disassemble 14screws on side part, then cabinet and the unit are separated.	
		② It is possible to clean the surface of heat exchanger and drain board.	
		③ After cleaning heat exchangers and drain board, check whether the drain exhaust are clogged.	
④	Cleaning a filter	① Remove bracket for fixing filter(6 screws disassembly).	

No.	Part name	Procedures	Picture
④	Cleaning a filter	② Clean the filter with removing downward.	
		③ After cleaning the filter, insert and fasten it with bracket for fixing.	

Outdoor Unit

No.	Part name	Procedures	Picture
①	Outdoor	① Outdoor unit of a package airconditioner	
	Control box	② Separate a front tightening part.	
		③ Separate the tightening part from side.	
②		① The connection status of control box wiring	

No.	Part name	Procedures	Picture
③	Cabinet	① Remove the power cable after turn off the unit. ② Remove the top cover. ③ Remove the control box cover. ④ Pull out the assembly cable. ⑤ Remove the side of cabinet. ⑥ Remove the front side of cabinet. * When assembling the parts, check whether each parts and electrical connector fixed firmly.	
④	Fan motor & Propeller fan	① Do above process 1. ② Remove nut flanges(Turn screw leftward, but turn right if you want to remove) ③ Disassemble propeller fans.	

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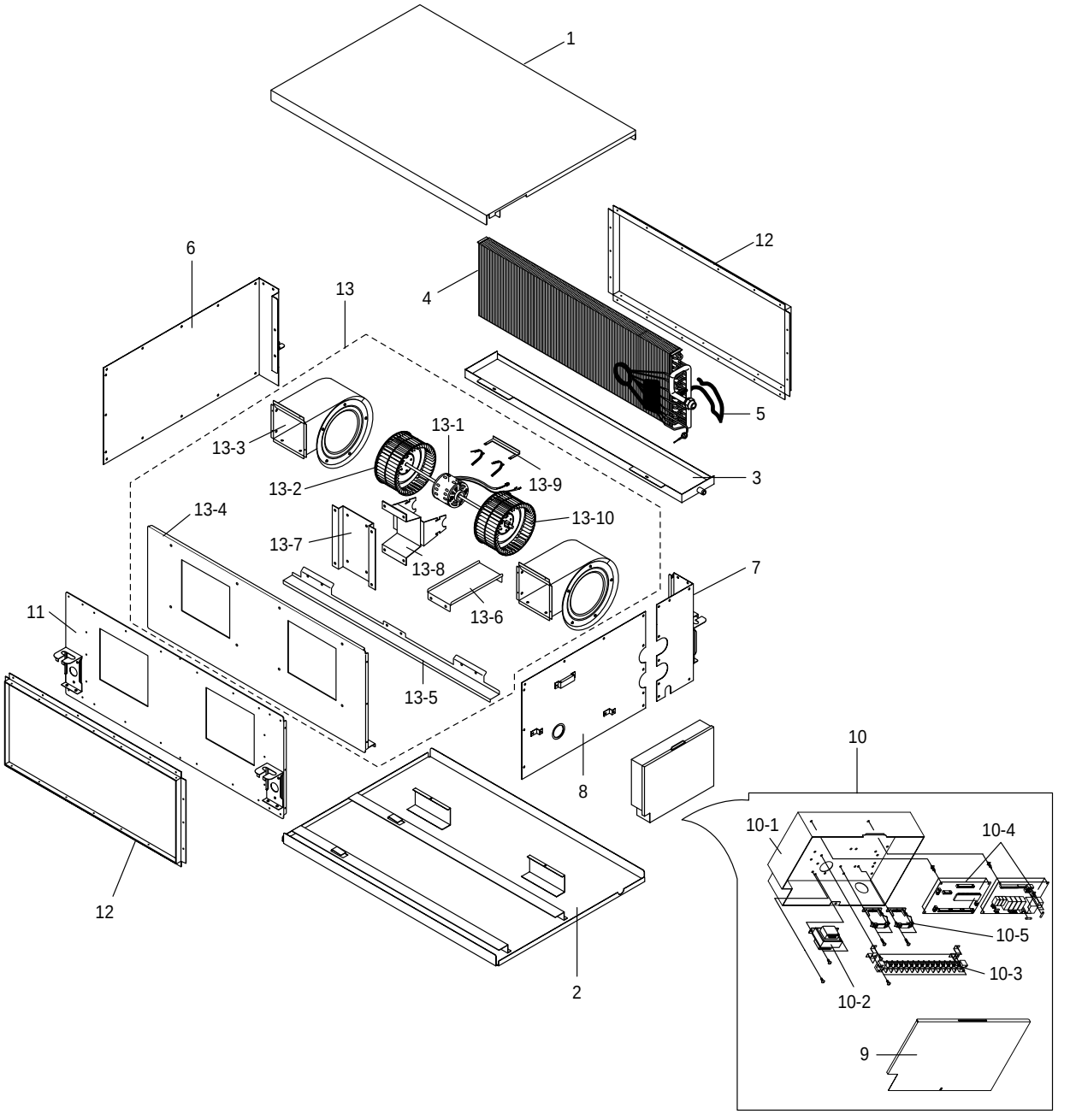
6. Exploded Views and Part LIst

6-1 Indoor Unit



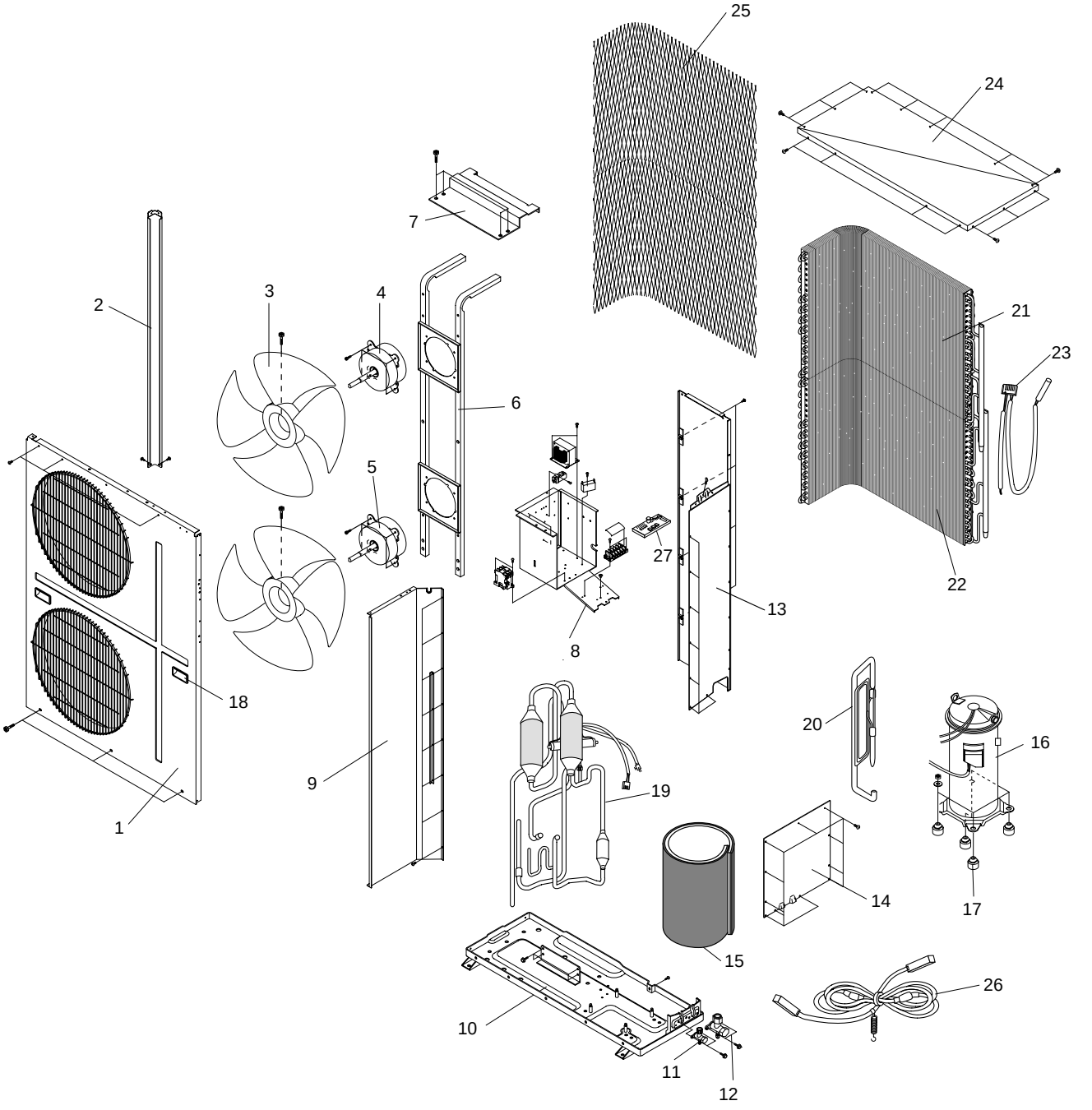
■ Indoor Unit Parts list

NO	CODE NO	Description	Specification	Q'TY	Remark
1	DB90-00314A	ASSY CABI-TOP	ADC-35ZH3, DUCT TYPE	1	
2	DB90-00316A	ASSY CABI-BASE	ADC-35ZH3, DUCT TYPE	1	
3	DB94-00093A	ASSY DRAIN PAN	ADC-35ZH3, DUCT TYPE	1	
4	DB96-00619A	ASSY EVAP	ADH4400G	1	
5	DB32-00016B	THERMISTOR-ASSY	ADC-35ZH3	1	
6	DB90-00319A	ASSY CABI-SIDE LF	ADC-35ZH3, DUCT TYPE	1	
7	DB90-00318A	ASSY CABI-SIDE RH B	ADC-35ZH3, DUCT TYPE	1	
8	DB90-00320A	ASSY CABI-SIDE RH A	ADC-35ZH3, DUCT TYPE	1	
9	DB63-00080A	COVER-CONTROL	SGCC-M, T0.8, –, –, ADH2400E	1	
10	DB93-00249S	ASSY CONTROL IN	220V, 60Hz, ADE-35ZH3, –	1	
10-1	DB61-00098A	CASE-CONTROL	SGCC-M, –, T0.8, –, AH-240E, –	1	
10-2	DB26-00002A	TRANS-POWER	250V, 50HZ, D68	1	
10-3	DB65-00029L	TERMINAL BLOCK-15P	–, –, 250V 20A, –	1	
10-4	PD-DH3200-08	ASSY PCB PARTS	ADH4400G	1	
10-5	DB61-40291B	HOLDER-WIRE	PP, T2.0, BLK, ADH2400E	2	
11	DB90-00317A	ASSY CABI-FRONT	ADC-35ZH3, DUCT TYPE	1	
12	DB90-00315A	ASSY-BRACKET OUTLET	ADC-35ZH3, –	2	
13	DB94-00092C	ASSY BLOWER	ADC-35ZH3, DUCT TYPE	1	
13-1	DB31-00079C	MOTOR FAN	OSM1504SAC (S320)	1	
13-2	DB67-00117A	BLOWER-LF	SGCC-M, ADC-35ZH3, DUCT	1	
13-3	DB90-00313A	ASSY-HOUSING	ADC-35ZH3, DUCT TYPE	2	
13-4	DB64-00303A	PANEL-DUCT	SDC-35ZH3, SGCC-M, T1.2	1	
13-5	DB61-00539A	BRACKET-BLOWER	ADC-35ZH3, SGCC-M, T1.2	1	
13-6	DB61-00542A	SUPPORTER-MOTOR	SGCC-M, T1.6, ADC-35ZH3	1	
13-7	DB61-00541A	HOLDER-MOTOR	ADC-35ZH3, SGCC-M, XT2.0	1	
13-8	DB61-20071A	BASE-MOTOR	ACRYL, –, –, –, –	1	
13-9	DB61-00540A	BRACKET-MOTOR GUIDE	ADC-35ZH3, SGCC-M, T1.6	1	
13-10	DB67-00117B	BLOWER-RH	SGCC-M, ADC-35ZH3, DUCT	1	

■ Optional Accessory List

NO	CODE NO	Description	Specification	Remark
1	DB97-00217B	WIRED REMOTE CONTROLLER	KR-H50110	
2	DB97-00218A	WIRELESS REMOTE CONTROLLER	KR-H40100	
3	DB97-00222A	RECEIVER & DISPLAY UNIT	KRE-H2000	
4	DB97-00221C	WIRE KIT (WIRELESS)	KWE-A110	
5	DB97-00219A	CENTRALIZED CONTROLLER	KR-1160110	
6	DB97-00220C	TRANSMITTER	KT-A00	
7	DB97-00658B	FILTER KIT	KF-H0B0	
8	DB97-00557B	DRAIN PUMP KIT	KDP-H07550	

6-2 Outdoor Unit



■ Outdoor Unit Parts list

NO	CODE NO	Description	Specification	Q'TY	Remark
1	DB90-1056JA	CABI OUT FRONT	KFH45PY1, SILIT	1	
2	DB63-30028C	GUARD-INLET	–, –, SC-91438T, –	1	
3	DB67-50067A	FAN-PROPELLER	ABS+GF20, D495, 4BLADE	2	
4	DB31-00060A	MOTOR FAN	OSME-1146SRC(S541)	1	
5	DB31-00060C	MOTOR FAN	OSME-1146SRC(S540)	1	
6	DB90-30028E	ASSY-MOUNT MOTOR OUT	APE-1600CR, –	1	
7	DB61-40088A	HOLDER-FRAME	SGCC1, T1.6, –, –	1	
8	DB93-00317E	ASSY CONTROL OUT	ADH4400G	1	
9	DB67-30025A	PARTITION	SBHG1, T1, –, 389.17x1239.46	1	
10	DB90-20085K	ASSY-BASE OUT	AP-3508, M8 WELD BOLT	1	
11	DB62-40011F	ASSY-VALVE 3/8”	AP-3508, 3/8”	1	
12	DB62-40092A	ASSY-VALVE 3/4”	AP-3508, 3/4”	1	
13	DB90-10582A	ASSY-CABI OUT SD	AP-1100, ASSY SPOT	1	
14	DB90-10085B	ASSY-CABI OUT UP SD	AP-1004/1604CR, –	1	
15	DB72-00236A	INSULATION-SOUND	T12, W710, L410, FELT	1	
16	DB95-10057J	ASSY-COMP-SCROLL	ZR61KC-TFD	1	
17	DB73-10023A	GROMMET-MOUNT	EPDM, BLK	4	
18	DB67-90017B	HANDLE	ABS, –, SC-90073R	3	
19	DB96-00304A	ASS’Y 4WAY V/V	CH44ZAX	1	
20	DB96-00925A	ASS’Y CHECK V/V	DH44ZAX	1	
21	DB96-30353A	ASS’Y COND UP PART	ASS’Y	1	
22	DB96-00559A	ASS’Y COND LOW PART	ASS’Y	1	
23	DB32-00021C	THERMISTOR COND	ASS’Y, DH44ZAX	1	
24	DB90-00194A	ASSY-PLATE-TOP	CH44ZAX, –	1	
25	DB63-30110C	SCREEN-GUARD	P.E.H 100%, T2.5, –, –	1	
26	DB95-30013F	ASS’Y HEATER COMP	80W	1	
27	PD-DH3200-S4	ASS’Y PCB PART	DH44ZAX	1	

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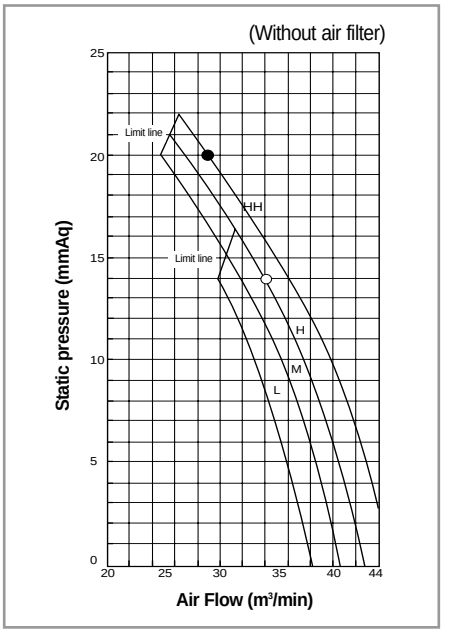
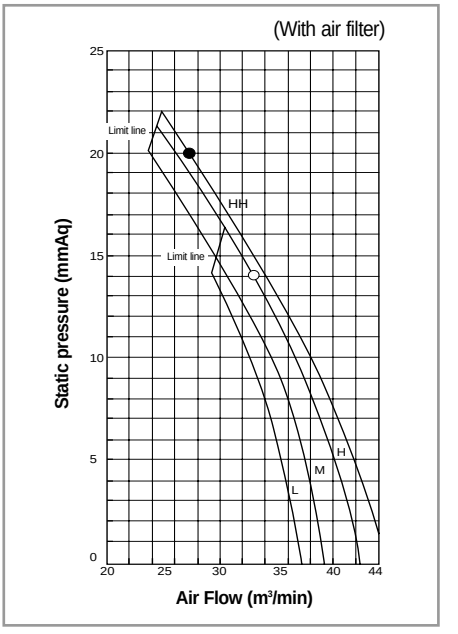
7. Schematic Diagrams

7-1 Graph of air flow rate vs external static pressure





How to Read Diagram

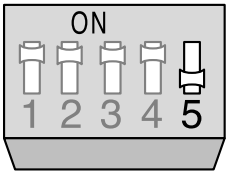
1. The vertical axis is the external static pressure(mmAq) while the horizontal axis represents the AIR FLOW(m^3/min).
2. The characteristic curves for 'HH', 'H', 'Med', and 'Low' fan speed controller are shown.
3. The nameplate values are shown based on the 'H' air flow.
4. If external static pressure is too great, the air flow volume may drop too low as explained above.

HH : DIP Switch OFF position(High speed) H : At shipment(Normal speed)

If external static pressure is too great(due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem can be solved by increasing the fan speed using the following procedure.

1. Remove the screw on the electrical component box and remove the cover plate.
2. Adjust the DIP switch(SW2) on the main PCB to the "OFF" position.

Switch No.	Switch Position	Function
5	ON	Normal speed
	OFF	High speed



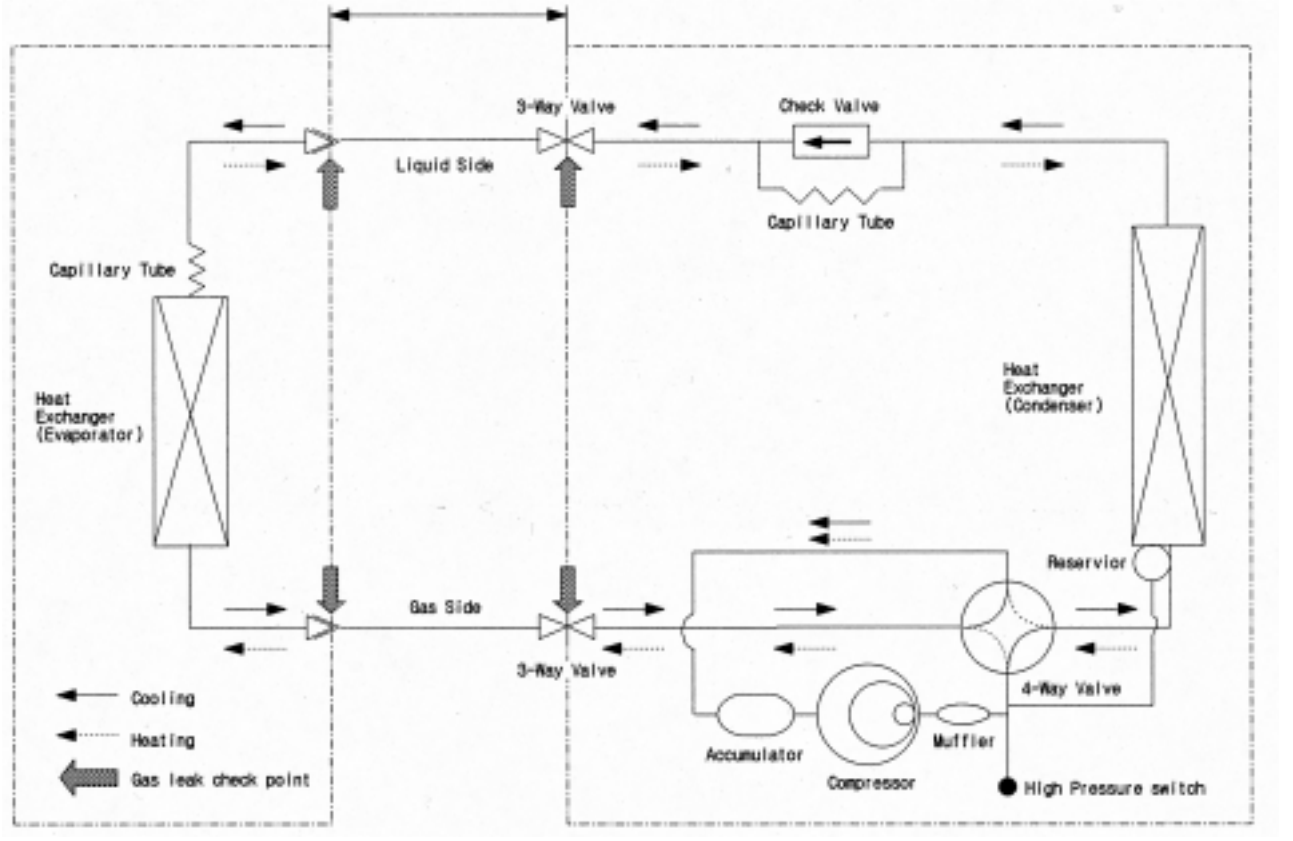
Note: ◆ This air conditioner is tested under 14mmAq external static pressure.
◆ If you increase the fan speed, you can use the air conditioner under the external static pressure of 20mmAq maximally.

3. Re-install the cover plate and join the removed screw.

7-2 Refrigerant Cycle Diagram

Indoor Unit **Outdoor Unit**

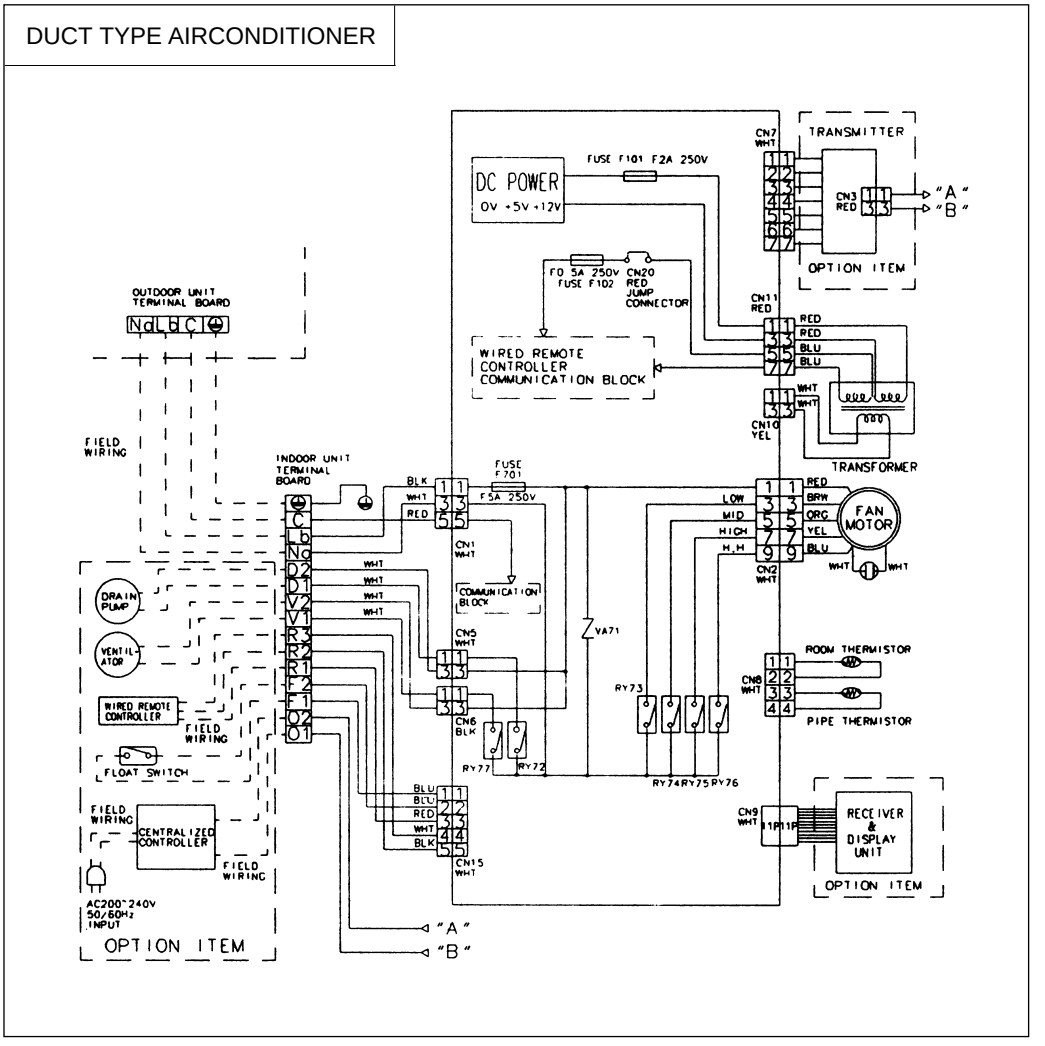
*Allowable pipe length : Max. 50m
*Allowable drop distance : Max. 25m



7-3 Wiring Diagram

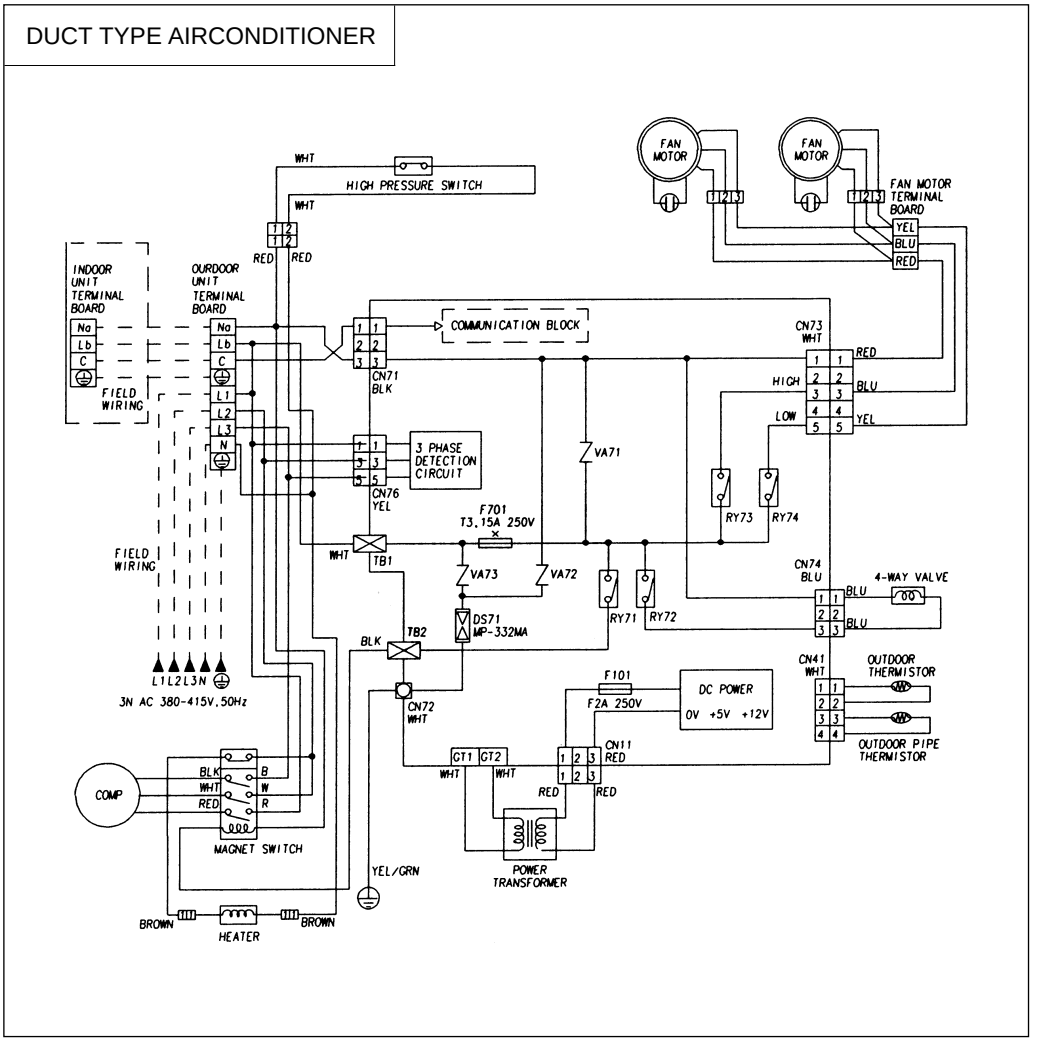
7-3-1 Indoor Unit

DUCT TYPE AIRCONDITIONER



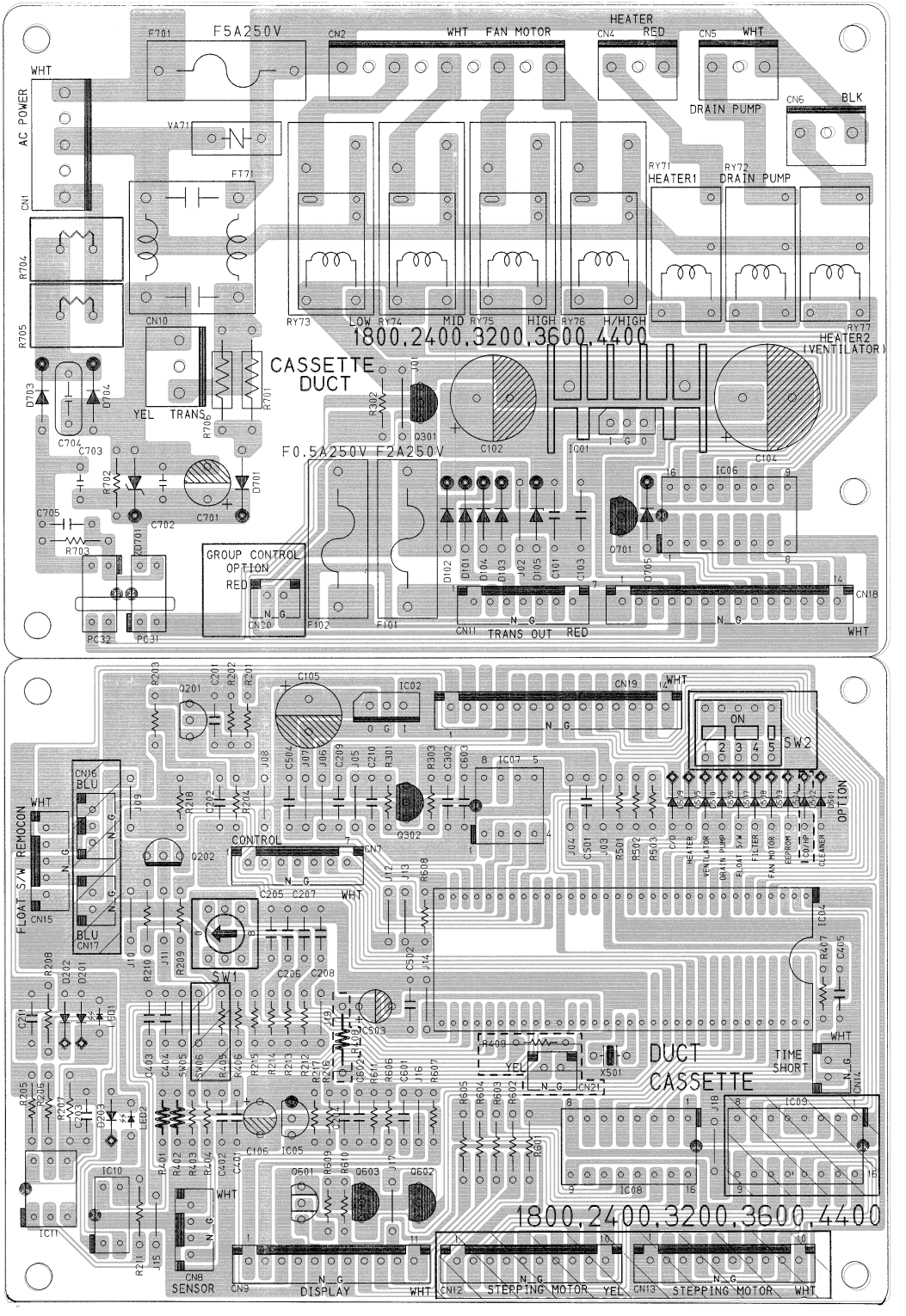
7-3-2 Outdoor Unit

DUCT TYPE AIRCONDITIONER



7-4 PCB Diagrams

7-4-1 Indoor Unit (PD-DH3200-08)

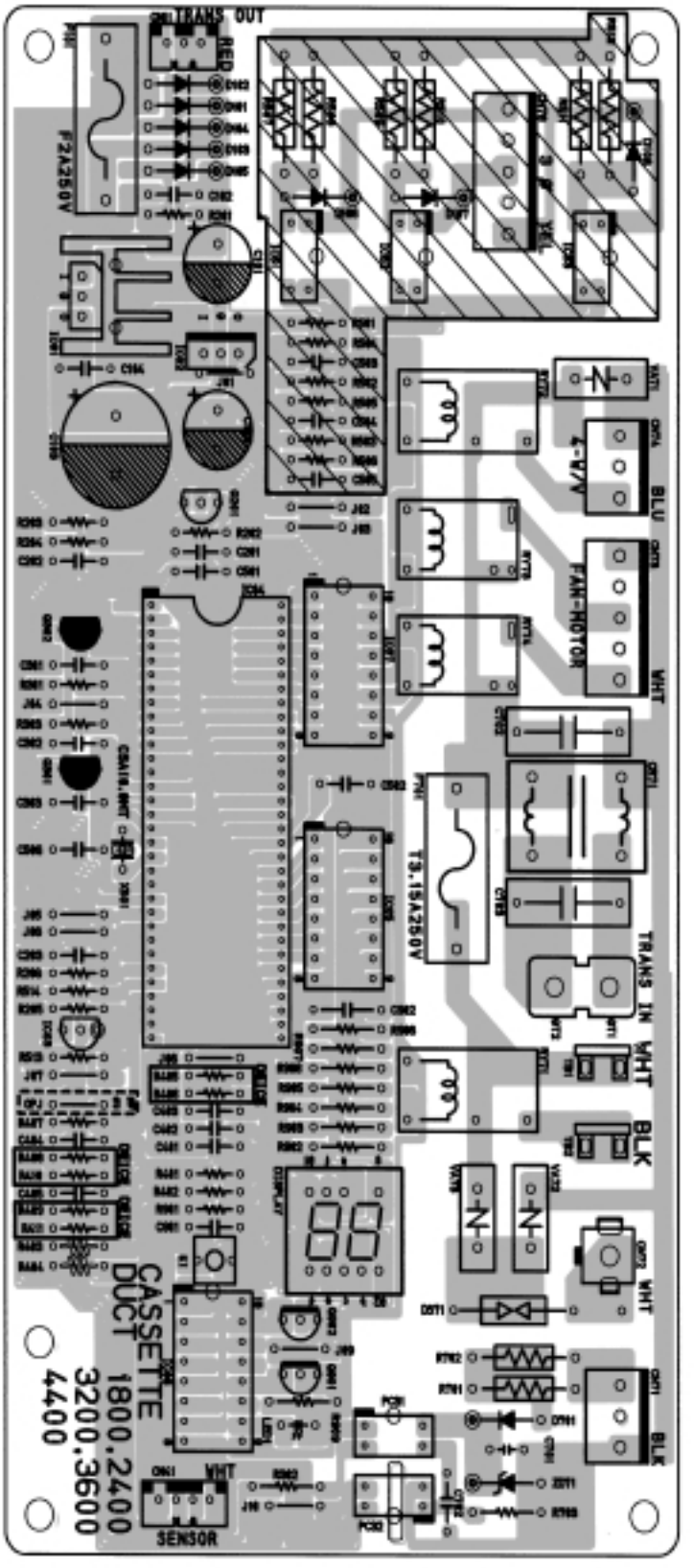


■ Indoor Part List (PCB CODE : PD-DH3200-08)

Mark	Parts Name	Specification
J01, J02, J04 - J19,SW05,SW05	JUMP WIRE	PI 0.6 SN T 52MM
IC04	IC-MCU	UPD780032
IC06,IC08	IC-LINEAR	KA2657
IC07	IC-EEPROM	93LC56B-I/P
IC05	IC-RESET	KA7533
PC31,PC32,IC10	PHOTO-COUPLER	PC817
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
IC11	PHOTO-THYRISTOR	S12MD1V
X501	CERAMIC-RESONATOR	4MHz CST4MTW TC
D101 - D105,D701,D703,D704,D705	DIODE-RECTIFIER	1N4007
ZD701	DIODE-ZENER	ZD24
C/D,VENTLATOR,DRAIN PUMP	DIODE-SWITCHING	1N4148M,100V
FLOAT S/W,FILTER,FAN MOTOR,EEPROM	"	"
CLEANER,D201-D203	"	"
CN18,CN19	CONNECTOR-HEADER	SMW250-14-WHT
CN13	CONNECTOR-HEADER	SMW250-10-WHT
CN12	CONNECTOR-HEADER	SMW250-10-YEL
CN9	CONNECTOR-HEADER	SMW250-11-WHT
CN11	CONNECTOR-HEADER	SMW250-07-RED
CN8	CONNECTOR-HEADER	SMW250-04-WHT
CN14	CONNECTOR-HEADER	SMW250-02-WHT
CN7	CONNECTOR-HEADER	SMW250-07-WHT
CN20	CONNECTOR-HEADER	SMW250-02-RED
CN15	CONNECTOR-HEADER	SMW250-05-WHT
CN5	CONNECTOR HEADER	YW396-03AV-WHT
CN2	CONNECTOR HEADER	YW396-09AV-WHT
CN10	CONNECTOR HEADER	YW396-03AV-YEL
CN1	CONNECTOR HEADER	YW396-05AV-WHT
CN6	CONNECTOR HEADER	YW396-03AV-BLK
Q601	TR-SMALL	A708,NPN
Q201	TR-SMALL	KSC945,NPN
Q301,Q701,Q302,Q602,Q603	TR-DIGITAL	KSR1002
Q202	TR-DIGITAL	KSR2002
LED1	LED-LAMP	RED
LED2	LED-LAMP	GREEN
C702,C703	C-FILM	DISK,4.7NF
C602	C-CERAMIC	AXIAL,4.7NF(472)
C101,C103,C105,C209,C210,C501,C302,C603	C-CERAMIC	AXIAL,100NF(104)
C205-C208,C402-C404,C502,C204,C405	-	-
C202,C203	C-CERAMIC	AXIAL,10NF(103)

Mark	Parts Name	Specification
C704	C-FILM	DISK,10NF(103)
C601	C-CERAMIC	AXIAL,101
C211	C-CERAMIC	AXIAL,1NF(102)
C102	C-AL	1000uF/35V
C104	C-AL	2200uF/25V
C105	C-AL	470uF/25V
C106	C-AL	1uF/16V
C503,C701	C-AL	100uF/16V
R201,R218,R501-R503,R608,R405,R406,R215	R-CARBON	10K-J 1/8W
R212-R214,R607,R610,R409	-	-
R302	R-CARBON	1K-J 1/4W
R203,R204,R301,R217,R216,R609	R-CARBON	1K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R209	R-CARBON	12K-J 1/8W
R207	R-CARBON	27K-J 1/4W
R210,R208	R-CARBON	2.4K-J 1/4W
R211	R-CARBON	330-J 1/4W
R601-R605	R-CARBON	330-J 1/2W
R403,R404,R606	R-CARBON	330-J 1/8W
R401, R402	R-METAL	6.8K-F 1/8W
R611	R-CARBON	100K-J 1/8W
R205, R206	R-CARBON	10-J 1/4W
R703	R-CARBON	4.7K-J 1/4W
R706, 701	R-CARBON	100K-J 2W
R702	R-CARBON	100K-J 1/4W
R704, R705	R-CELENT	10K-J 5W
RY71, 72, 77	RELAY-MINIATURE	JQ1A-12V
F701	FUSE	F5A 250V
HOLDER	HOLDER	FH-51H 7.5A
F101	FUSE	F2A250V
HOLDER	HOLDER	FH-51M 7.5A
F102	FUSE	F0.5A 250
HOLDER	HOLDER	FH-51M 7.5A
FT71	NOISE FILTER	HP1-P16
VA71	VARISTOR	1NR14D561
RY73, 74, 75, 76	RELAY	JWIaFSN(10A)

7-4-2 Outdoor Unit (PD-DH3200-S4)



■ Outdoor Part List (PCB CODE : PD-DH2400-S4)(DUCT)

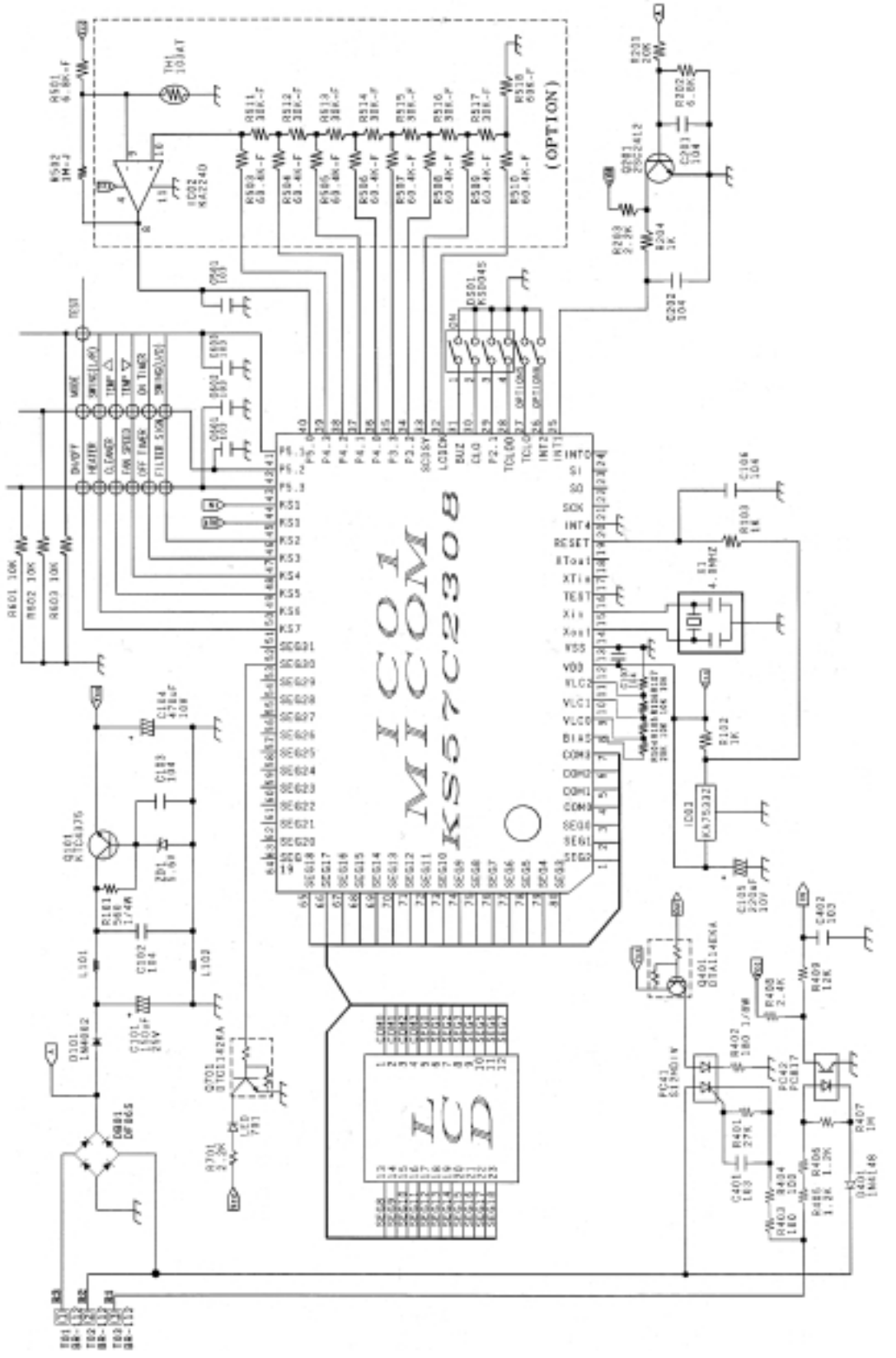
Mark	Parts Name	Specification
J01-J03,J05-J10,OPJ	JUMP WIRE	PI 0.6 SN T 52MM
IC4	IC-MCU	KS88C46
IC05-IC07	IC-LINEAR	KA2657
PC31,PC32	PHOTO-COUPLER	PC817
IC03	IC-RESET	KA7533
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
X501	CERAMIC-RESONATOR	10MHz
D101-D105,D701	DIODE-RECTIFIER	1N4007
ZD71	DIODE-ZENER	ZD30
Q301,Q302	TR-DIGITAL	KSR1002
Q901,Q902	TR-DIGITAL	KSR2002
Q201	TR-SIGNAL	C945Y
LED1	LED-LAMP	RED
C701	C-FILM	DISK,4.7NF
C702,C703	C-X2	X-CAP,100NF(X2)
C502,C902,C201,C501,C104	C-CERAMIC	AXIAL,100NF(104)
C401-C403,C901,C202,C303	-	-
C506,C203,C404,C405,C102	-	-
C302	C-CERAMIC	AXIAL,1NF(223Z)
C101	C-AL	1000uF/35V
C103	C-AL	2200uF/25V
C105	C-AL	470uF/25V
R201,R901,R514,R513,R407	R-CARBON	10K-J 1/8W
R409	-	-
R405,R203,R204,R206,R205,R411	R-CARBON	1K-J 1/8W
R410	-	-
R406,R408,R409	R-CARBON	3.9K-J 1/8W
R703	R-CARBON	4.7K-J 1/4W
R301	R-CARBON	620-J 1/8W
R302	R-CARBON	470 1/4W
R902-R909	R-CARBON	470 1/2W
R303	R-CARBON	12K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R401,R402	R-CARBON	330-J 1/8W
R403,R404	R-METAL	18K-F 1/8W
R701,R702	R-CARBON	5.6K 2W
RY71,RY74	RELAY-MINIATURE	JQ1a-12V
RY72,RY73	RELAY-MINIATURE	CS11-12SH
F101	FUSE	FST,250V,2A
F701	FUSE	FST,250V,3.15A
-	FUSE HOLDER	FH-51H 7.5A
-	HEAT SINK	A6063,L30LW23.5
CR71	COIL	L4460
VA71	VARISTOR	470V,4500A
CN73	CONNECTOR HEADER	YW396-05AV-WHT
CN71	CONNECTOR HEADER	YW396-03AV-BLK
CN74	CONNECTOR HEADER	YW396-03AV-BLU
CN41	CONNECTOR HEADER	SMW250-04-WHT
CN11	CONNECTOR HEADER	SMW250-03-RED
CN72	CONNECTOR HEADER	YDW236-01-WHT
GT1,GT2	GT PIN	GTP
TB1,TB2	TERMINAL	1P,TAB
K1	SWITCH	TACT
DISPLAY	7-SEG	2-DIGIT
DS71	DISCHARGER	MP-332MA

7-5 THERMISTOR

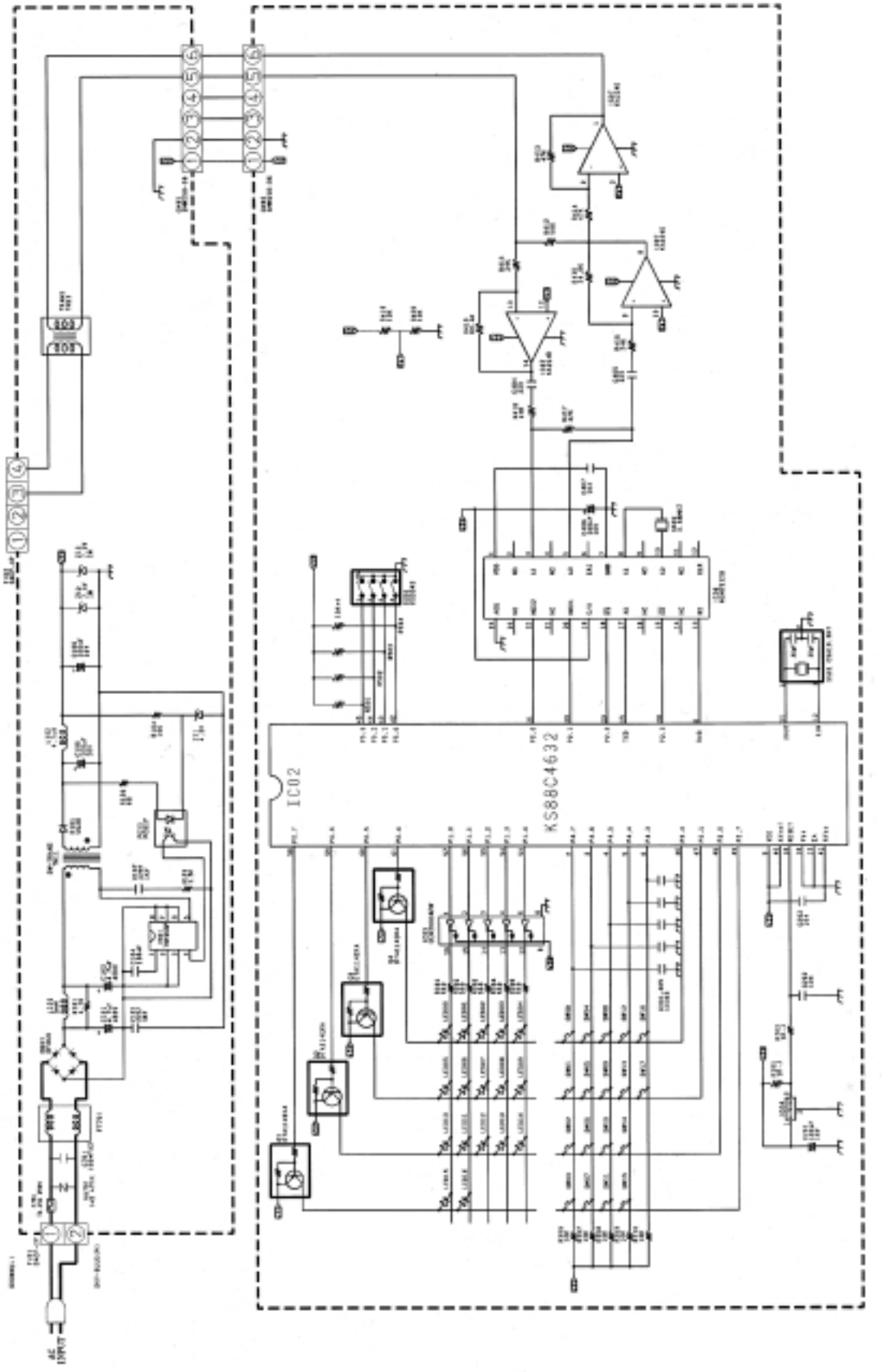
THERMISTOR MODEL : 103AT			
THMPERATURE [˚C]	THERMISTOR [Kohm]	THMPERATURE [˚C]	THERMISTOR [Kohm]
70	2.229		
69	2.296	29	8.622
68	2.365	28	8.944
67	2.437	27	9.281
66	2.512	26	9.632
65	2.589	25	10
64	2.669	24	10.380
63	2.752	23	10.780
62	2.838	22	11.200
61	2.928	21	11.630
60	3.021	20	12.090
59	3.116	19	12.560
58	3.216	18	13.060
57	3.319	17	13.570
56	3.426	16	14.120
55	3.537	15	14.680
54	3.652	14	15.280
53	3.772	13	15.900
52	3.897	12	16.550
51	4.026	11	17.240
50	4.161	10	17.960
49	4.300	9	18.700
48	4.444	8	19.480
47	4.594	7	20.290
46	4.749	6	21.150
45	4.912	5	22.050
44	5.080	4	22.990
43	5.256	3	23.990
42	5.439	2	25.030
41	5.630	1	26.130
40	5.828	0	27.280
39	6.033	-1	28.470
38	6.246	-2	29.720
37	6.468	-3	31.040
36	6.699	-4	32.430
35	6.941	-5	33.890
34	7.192	-6	35.430
33	7.455	-7	37.050
32	7.729	-8	38.760
31	8.015	-9	40.560
30	8.313		

7-6 Circuit Diagrams

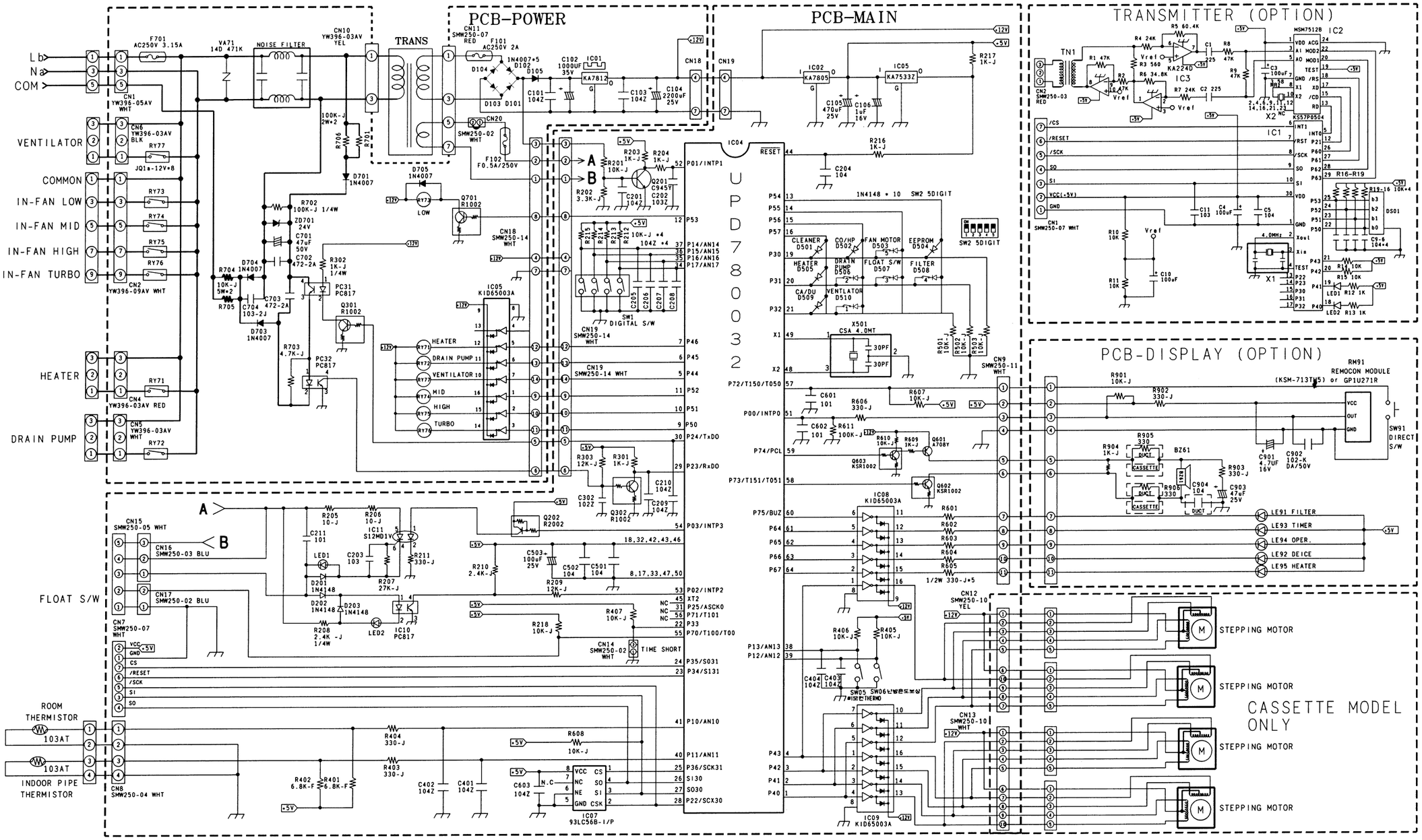
7-6-1 Wired Remote Controller



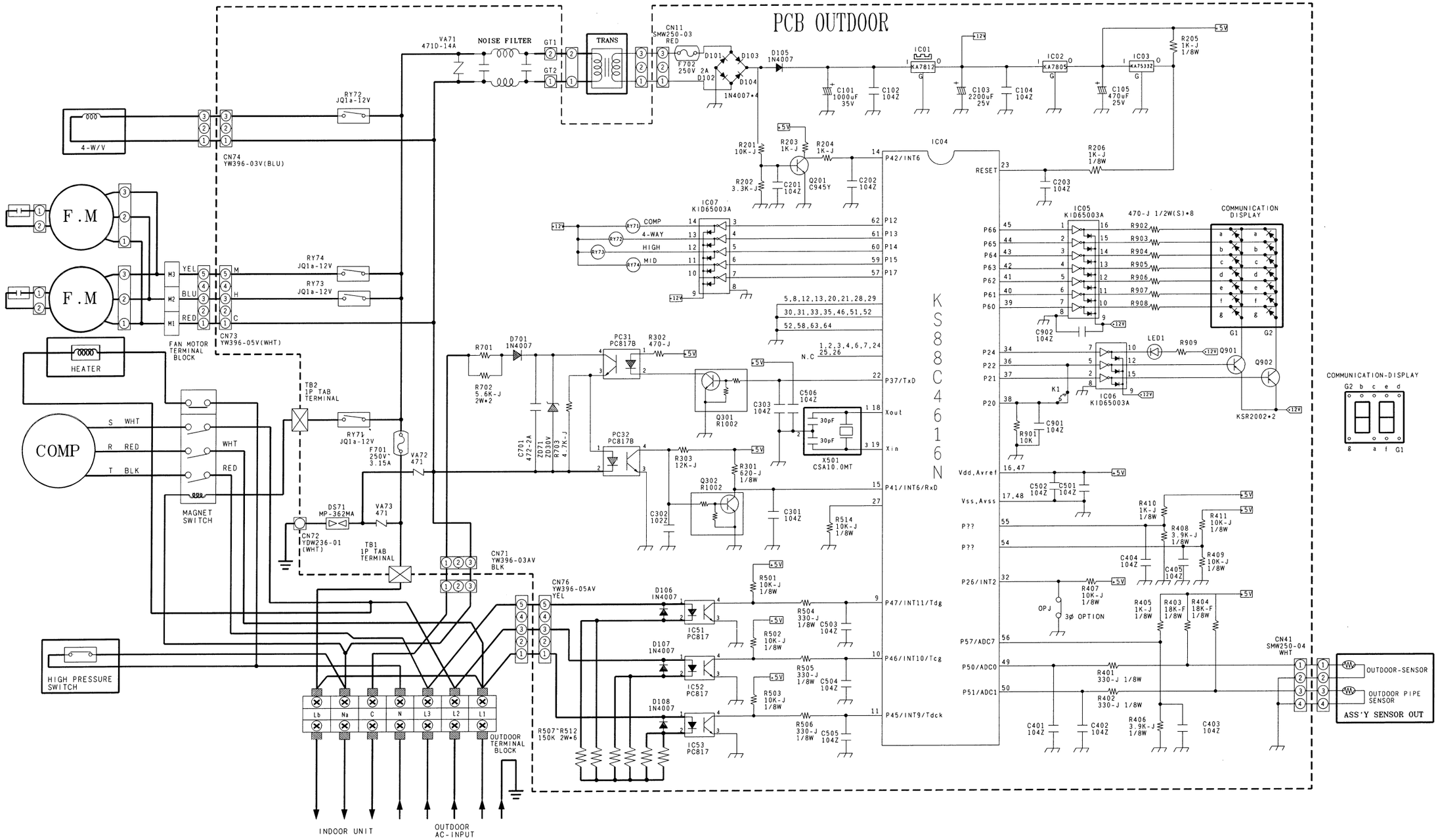
7-6-2 Centralized Controller



7-6-3 Indoor Unit



7-6-4 Outdoor Unit



UPDATE LOG SHEET

Application date	Page	Part#	Note(Cause & Solution)	S/Bulletin#

Use this page to keep any special servicing information. (Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service website.

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